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ORIGINAL ARTICLES.

CHRONIC JOINT DISEASE IN CHILDREN.[1]

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CHRONIC joint disease in children in nine cases out of ten, probably oftener, means tuberculosis. The reports of the Hospital for the Ruptured and Crippled for ten years (1891-1900) show 40,027 orthopedic patients under fourteen years of age, and 7,570 cases of joint tuberculosis, the large majority in children. The figures for the New York Orthopedic Dispensary and Hospital and for the Boston Children's Hospital show an even larger proportion. It is safe to say that tuberculous joint disease furnishes about one-quarter of the material of our large orthopedic clinics. Making all allowances for imperfect classification, the total of all other joint diseases is insignificant in comparison. We do encounter a certain number of rheumatic, traumatic, syphilitic and suppurative joints; also infections following measles, scarlet fever, typhoid fever, pneumonia —in fact, most of the acute infectious diseases; such joints are usually tuberculous, sometimes septic, but occasionally due to other specific infections.

Blenorrhagic infection of joints in children has been seldom observed in our clinic. We have seen a very few well-marked cases of arthritis deformans. Hemorrhagic and scorbutic joints have recently attracted attention and are of great practical importance. The joint complications of scurvy, unless very far advanced, are distinguished by being of all joint diseases the most readily and surely curable.

The comparatively small number of syphilitic bone and joint lesions in our orthopedic clinics seems remarkable. We occasionally find the hypertrophic sabre-like tibia, and the rather sluggish, not very painful joint effusions, particularly in the knee, where it is often bilateral, and curable under rest, compression, and specific medication. In some of these cases there are also nodular swellings of bone or implication of other joints, but in many no clear history of syphilitic symptoms, much less of infection either in the child or its parents, is obtainable. It is now recognized that dactylitis is tuberculous in the large majority of cases.

The suppurative arthritis of infants is essentially an acute infection, and if promptly treated by aseptic evacuation and drainage, it will seldom leave chronic disease in its wake.

Some cases of osteomyelitis near a joint are circumscribed and chronic. It is possible, though unusual, for the lesion to be bilateral and symmetrical, as in a case recently reported by Goldthwait, when the local symptoms were in or near the ankles, and the child was treated for some time in the Boston Children's Hospital for rheumatism; later the use of the X-ray revealed a well defined osteomyelitic focus. In this case the disease followed a fall, and the value of the X-ray for diagnosis was well illustrated. Of rheumatic joints in children the writer sees very little, although the diagnosis is not infrequently encountered. Pediatrists doubtless see more of it. At the same time one feels like exclaiming, "Beware of hypothetical rheumatism and especially of monarticular rheumatism in children!" The Ides of March were not more portentous for Cæsar than these for the hasty diagnostician. Equally dangerous is the easy dictum that the child will outgrow his defect, unless one knows that he will. In so far as concerns the joints we may conclude that the great white plague is far in the lead and there is practically no second.

As to the distribution of tuberculous disease among the various joints, statistics of over 13,000 cases show rather more than two-fifths vertebral, somewhat less than two-fifths located in the hip, and about one-fifth in all the other joints; of this remaining fifth the knee claims more than half. This disease affects by preference, then, the spine and larger joints, and the lower extremity much oftener than the upper. The primary lesion is nearly always in the cancellous tissue in or near an epiphysis; primarily synovial tuberculosis is rare. The joint is involved secondarily, and in the later stages may become the focus of a mixed infection by the addition of pus-producing bacteria.

One of the most marked characteristics of tuberculous joint disease is its insidiousness. It may exist unsuspected for months, when, sometimes after a fall or blow, a peculiar attitude, a knuckle in the spine, or a limping gait, arrest attention, previous symptoms having been unnoticed or misinterpreted. The fall, when it has occurred, commonly serves to reveal what already existed, but in some cases the local conditions following trauma are, no doubt, favorable to the lodgment and proliferation of the bacilli. It has been remarked that a comparatively slight injury is oftener followed by this kind of trouble than is one of great violence. In many cases there is no history of injury, but the disease follows measles, whooping-cough, scarlet fever, chronic intestinal catarrh or other exhausting disease. Whooping-cough and measles are most frequently followed by vertebral disease, possibly because the vitality of the tissues is compromised by the trauma due to coughing as well as by the toxemia. In many cases no cause can be assigned.

[1] Read before the Pediatric Section of the New York Academy of Medicine, March 13, 1902.

Too much stress should not be laid on the family history which is often perfectly good. The frequent absence of pain in the early stages and occasionally throughout the disease adds to its insidious character, as do also the characteristic periods of intermittence of the symptoms. Local heat and constitutional disturbance may be absent during the invasion; the former is usually not present unless the infection becomes mixed.

The symptoms vary with the structural peculiarities and anatomical relations of the part involved, but the most characteristic one, and the one of most diagnostic importance, is stiffness or limitation of motion due to peculiar spasmodic contraction of the muscles. It is the most important object of a physical examination to reveal this symptom. If the hip or spine be suspected, it is necessary to undress the child entirely in order to study the gait and attitude critically, and to test joint mobility. Symptoms are often characteristic before they are prominent, and it is vastly important to recognize their beginnings. A certain carefulness in the movements and anxiousness of expression may be noted before there is much pain or constitutional disturbance. Pain when present in vertebral and hip disease is referred usually to the termination of the implicated filaments, but tenderness in accessible parts may be demonstrated often in disease of the knee, elbow, wrist, and ankle.

In vertebral disease the location of the pain and many of the symptoms vary with the region affected. In cervical disease the pains are in the neck, shoulders and back of the head; the neck is often turned or twisted to one side, while the chin drops, and there is resistance to motion. The child frequently supports the chin on the hands.

In dorsal disease the characteristic pains are at the sides or front of the chest and in the abdomen. Gastralgia is such a common symptom that if it be persistently recurrent the spine should always be examined. The breathing may be short, jerky and shallow, leading to the suspicion of disease of the lungs. The gait is shuffling or gliding, and often sidling, with the knees bent and the toes turned in. The spine is held stiffly and often bends to one side before there is noticeable posterior deformity.

In lumbar disease the pains may be in the loins, lower back, lower abdomen, through the hips or down the thighs; they may even be referred to the knee, leg, ankle or foot. The lumbar spine becomes flattened, and there may be lateral deviation with or without contraction of the psoas. This latter symptom, if severe, may cause limping. In all these locations there is difficulty in stooping and in recovering from the stooping posture. The child is often restless at night, and may cry out or wake up screaming. Pain is often provoked by coughing, sneezing, laughing, hiccoughing, by being lifted or jolted, or by anything which subjects the spinal column to a shock, jar or strain. The pains are in some cases paroxysmal and very severe, in others the child may show a vague discomfort by peevishness, restlessness at night, and disinclination to play, and endeavors to ease the strain on the back by resting his hands or elbows on the furniture. Occasionally the child suddenly refuses to walk. It will be seen that the early symptomatology of vertebral disease is exceedingly varied and characteristic when carefully studied. In passing it may be remarked that pressing over the spinous processes to elicit pain or tenderness gives no reliable information.

To show how readily Pott's disease of the spine may be mistaken for a great variety of common affections, the following list of the previous diagnoses in a series of private cases is given. The erroneous diagnosis had usually been followed by corresponding treatment, in most cases useless, in some injurious, while in all precious time was lost. Rheumatism was diagnosed eleven times, no disease three times, weakness twice, rapid growth, affectation, nervous exhaustion, neuralgia, inflammation of neck muscles, once each; torticollis was diagnosed in two cases (one with operation), lateral curvature in five patients, most of whom were told to exercise, hip disease in six, asthma in two, pneumonia, disease of the lungs, and disease of the heart in one each. Colic was diagnosed three times, lumbago twice, abdominal trouble, neuralgia of the bowels, inflammation of the bowels, and painter's colic, each once. Worms were diagnosed twelve times, and in two cases a vermifuge demonstrated their presence, but did not relieve the symptoms. Kidney colic and gravel were diagnosed three times, stone in the bladder once (with lithotomy), uterine colic once. This incomplete list demonstrates, I think, the necessity of constantly keeping spinal tuberculosis in mind in pediatric practice, and of a critical examination in case of doubt.

The medical student clings with as desperate tenacity to the knee-pain of hip-disease as a pathognomonic symptom, as does the school boy to the date of the discovery of America as the key to all history. It is well to know that disease of the lumbar spine, knee disease and other affections may cause pain in the knee and that it is frequently absent in hip disease. The endeavor to elicit pain in the suspected hip by forced movements, pounding on the heel or otherwise, is perfectly useless, and may prove injurious. One should, on the contrary, seek to demonstrate and define the limitation of motion, and the involuntary spasmodic muscular contractions without pain to the patient. The limitation of hyperextension at the hip is the earliest and most delicate test.

In knee disease the joint very early becomes flexed and causes limping, which may be intermittent. A fusiform swelling gradually obscures the landmarks of the joint and points of tenderness over the femoral or tibial epiphysis may be elicited by careful search. Before long the enlargement of the epiphysis becomes evident, and the femur and limb of the affected side become demonstrably longer than their mates.

Louis, Rokitansky, and others have called attention to an antagonism between rheumatism, or gout, and pulmonary tuberculosis; this antagonism probably extends to tuberculous disease of the joints. Few rheumatic patients suffer from tuberculous joint disease, and few of the latter suffer from rheumatism. There also seems to be a well-marked antagonism between rickets and joint tuberculosis. For several years we have looked for tuberculous joints in rachitic children; a single case has rewarded our search. Considering the prevalence of both affections it would seem that rickets affords a relative immunity from joint tuberculosis. It would be interesting to know if this antagonism is confirmed by its behavior towards glandular, meningeal and visceral tuberculosis.

There are probably few chronic diseases in which correct early treatment is so beneficial and in which the results of delay are so serious as is the case in the chronic joint diseases of children. The diagnosis can nearly always be made with certainty by a careful study of the symptoms and physical signs before the occurrence of loss of substance; the prospects and even the life of the child may be sacrificed if proper treatment is delayed until the correct diagnosis obtrudes itself by the appearance of marked disability or noticeable deformity. In case of fire we do not postpone investigation until the beams are falling, but we locate the difficulty and apply the remedy as soon as smoke is detected. In the cases under discussion the earliest warnings cannot be too carefully heeded.

A STUDY OF GASTRORRHAGIA, WITH SPECIAL CONSIDERATION OF HEMORRHAGE DUE TO ULCERATIVE PROCESSES AND THEIR SURGICAL TREATMENT; REPORT OF CASES.[1]

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GASTRORRHAGIA is manifested either by hematemesis, or vomiting of blood, or by a combination of hematemesis and malena, or passage of blood in the evacuations. When blood is present in the stomach from any source it may be vomited or passed with the evacuations or both. In the majority of cases of profuse hematemesis malena is also present. There may, however, be malena with no hematemesis, when in the great majority of instances, though not in all, the hemorrhage arises from the intestinal tract below the pylorus.

In the consideration of a case of gastrorrhagia the following points must be weighed, viz.: Has the hemorrhage occurred from some portion of the body above the stomach and the blood been swallowed, as is not infrequently the case; or is the stomach itself the seat of hemorrhage?

In fracture at the base of the skull and in other injuries of the head blood may pass into the stomach and afterward be vomited. The source of the blood here is, of course, easily determined. In epistaxis a similar event may occur, in which case the hemorrhage from the posterior part of the nose is usually accompanied by a flow of blood from the nostrils. If, however, there is no flow anteriorly examination of the throat and nasopharynx will demonstrate the presence and source of the hemorrhage. If, as in some cases, the hematemesis occur some time after the nasal hemorrhage has ceased, a history of a previous attack of epistaxis can usually be obtained.

In bleeding from the lungs, if profuse and slow, blood may be vomited, and difficulty sometimes arises here in differentiation. The difficulty arises from the incomplete history the patient is able to give either of the present or a past hemorrhage and the fact that an attack of hemoptysis is not infrequently accompanied by vomiting or the blood may be swallowed and subsequently vomited.

Profuse hemoptysis may arise from the following conditions: (1) Rupture of an aortic aneurism into a bronchus or the trachea. This is rapidly fatal. (2) In pulmonary tuberculosis: (*a*) in the early stage of the disease the initial hemorrhage, (*b*) in the course of a progressive tuberculosis, (*c*) from rupture of an aneurismal branch of the pulmonary artery into a cavity (commonly fatal).

The practical question of diagnosis between these conditions and hematemesis may be decided in the following ways: By the mode in which the blood is brought up, by the symptoms and physical signs present and by an examination of the blood ejected. In hematemesis there is one, and only one, bringing up of blood; this may be repeated once or twice or more, but when the stomach is emptied the vomiting ceases. In hemoptysis, following the large hemorrhage which has put us in doubt as to its source, there will be subsequent slight hemorrhages; possibly but a few particles of blood brought up by coughing after the initial hemorrhage. The physical examination of the chest will also be a strong factor here in differential diagnosis. Following a profuse hemoptysis an alkaline sputum may be raised, streaked with blood and containing tubercle bacilli. With hematemesis the blood is usually mixed with stomach-contents and is acid. In hemoptysis the blood is mixed with a large amount of air and consequently the tendency is to a bright red color, while in hematemesis the blood is not mixed with air, is darker and often partially clotted. Hemoptysis is often preceded by an inclination to cough, due to tickling in the throat and a sensation of warmth in the chest, while in gastric hemorrhage, nausea and retching alone precede the attack. There is no rusty or bloody sputum following hematemesis.

In case the seat of hemorrhage is the stomach, what is the lesion present? The decision of this point rests almost solely on a recognition of the clinical symptoms present of the individual lesion.

[1] Read before the Upper Peninsular (Michigan) State Medical Society.

In a profuse gastrorrhagia the diagnosis lies between ulcer, mechanical congestion, and carcinoma. In carcinoma we find continuous, dull pain, at times becoming paroxysmal in character, violent and frequent vomiting, often periodic, and at times from an empty stomach. If the stomach contents be acid, this is due to the presence of organic acids, as hydrochloric acid is usually absent in carcinoma. The blood ejected is more often decomposed than recent—presenting the well known coffee-ground appearance. Obstinate constipation is usually present. Cachexia is marked in advanced cases. The disease is most common in adults of from forty to sixty years of age. Tumor is palpable in some cases. The presence of the Boas bacillus may sometimes be determined.

Mechanical congestion may be the cause of gastric hemorrhages. These arise as a result of portal obstruction, more commonly directly from pressure on the portal vein itself, from thrombosis of the portal vein or from cirrhosis of the liver; less commonly as a result of dilatation of the right heart from whatever cause, or from pressure on the vena cava inferior near its entrance into the right auricle. Thrombosis of the portal vein, according to Albutt, is a well-characterized, though seldom readily diagnosed affection. It is caused most frequently by compression of the intrahepatic branches of the portal vein in cirrhosis, syphilis, or tumors of the liver, or of the main branches or trunk by fibrous perihepatitis; chronic peritonitis (tuberculous), enlarged glands, impacted gallstones or tumor. There may be also disease of the wall of the portal vein either primary or secondary to some neighboring pathological condition. The classical symptoms resulting from this condition are ascites, hematemesis, enterrhagia, splenic enlargement, dilatation of the superficial abdominal veins and progressive marasmus.

In considering diseases of the liver which might result in mechanical congestion, particular attention must be directed (Ewald) to hemorrhage from dilated esophageal veins. These vessels form part of the collateral circulation for the blood in the portal vein and may become extremely varicose even to the point of rupture. If the escaping blood be swallowed and subsequently vomited, it may strongly simulate hemorrhage from the stomach. Blum, Litten, Ewald, and Osler report cases of this kind. The history and symptoms of a case of cirrhosis are sufficiently well known and do not require discussion in this paper. The chief anatomical features of mechanical congestion found in the stomach are as follows: (1) Congestion of the mucous membrane, especially of the pyloric part with submucous ecchymoses which become pigmented areas. These are not infrequently seen at autopsy. (2) Minute erosions of the mucous membrane from which bleeding may occur and larger areas which heal with a smooth scar without contraction.

Ulcer is the most frequent cause of hemorrhage from the stomach, occurring in slightly less than 50 per cent. of the cases, and *per contra* hemorrhage from the stomach is the most important sign of gastric ulcer. Since the process of ulceration implies a solution of continuity of the coats of a vessel the rational conclusion is, of course, that there will be an effusion of blood. As a rule, the opening in the vessel is small and is soon obliterated by the formation of a coagulum, and for this reason the hemorrhage from small vessels is not of much import and often passes unnoticed by both physician and patient. It is only when a larger vessel is eroded and a larger quantity of blood enters the stomach that grave symptoms appear.

In a typical case of such hemorrhage the patient experiences a sensation of fulness and warmth in the epigastrium. There is anxiety, restlessness, and possibly vertigo. The face is pale and drawn, the pulse rapid, soft and compressible. Usually in from ten to thirty minutes a feeling of nausea is felt, followed suddenly by vomiting of large quantities of blood, either bright arterial, brownish or black in color, possibly mixed with food. The patient as a rule feels faint, the face becomes blanched, and the extremities cold. In other words, we have a typical picture of surgical shock. If the hemorrhage continue uninterruptely, death is likely to occur from loss of blood; or if the hemorrhage be due to the erosion of a large vessel, death may ensue even before any vomiting has occurred. It should be borne in mind that hemorrhage may occur and may be unnoticed, passing on and being discharged in the evacuation so changed as to be unrecognized by the patient. After the initial symptoms of a moderately severe hemorrhage have passed, there is a stage of reaction in the majority of cases. While the bleeding has left the patient blanched and with bloodless lips and mucous membrane, and has somewhat depressed the temperature of the skin, the signs of reaction are shown in the recovery of the pulse. This becomes more full, even bounding at times and eventually slower. The reactionary stage naturally occurs more quickly and is more marked in those not debilitated by previous illness.

Physical examination in this form of hemorrhage reveals nothing of importance. Possibly, if a typical ulcer be present, there may be a localized tenderness in a larger area of general tenderness. This sign is, however, far from infallible, as will be shown later.

The mortality of gastric ulcer is greater, I believe, than is generally supposed. Warren and Gould, in the International Text-Book of Surgery, state that "death occurs in 15 per cent. of the cases, 7 per cent. being due to perforation," leaving 8 per cent. who die from hemorrhage. The prognosis in hemorrhage is worse after thirty years of age than in those under that age.

As intimated in the title of this paper, the treatment of hemorrhage of the stomach will here be considered from the surgical standpoint only.

There are two conditions indicating surgical intervention in gastrorrhagia, namely, profuse or repeated hemorrhages. Andrews and Eisendrath (Ann. of Surgery, 1899, October) maintain that "if medicinal treatment does not improve the patient's condition, a bleeding ulcer of the stomach will inevitably prove fatal without surgical intervention." They indicate surgical intervention for "repeated small hemorrhages or for profuse hemorrhage occurring more than once." Five hundred cubic centimeters is the amount determined upon by them as one which should be considered sufficiently severe to warrant immediate operation. While there may be doubt in some cases as to the actual existence of an ulcer, when the hemorrhages are repeated or profuse, operation is certainly justifiable. As a rule it is impossible to tell before opening the abdomen on what part of the mucous membrane the ulcer will be found; pain and localized tenderness are of little or no value in this connection. Even after the abdomen has been opened it is seldom possible to determine the location of the ulcer until the stomach itself has been opened. The surface should, however, be inspected, and in certain cases adhesions, slight thickening of the gastric wall, or change in color of the serous coat may indicate the location of the lesion. Of some slight aid to the operator in locating the site of the ulcer may be the generally acknowledged fact that the majority of ulcers are located in the pyloric region and in the greater curvature. It should not be forgotten that ulcers are often multiple, and further search should be instituted after locating one until the entire gastric mucosa has been carefully examined.

There is one point to which I wish to direct your attention, and that it the fact that "it is not always the typical round ulcer that causes the gravest symptoms." Severe and indeed fatal hemorrhage may arise from what appears to be a mere abrasion of the mucous membrane which is generally the seat of a chronic gastritis, as may be seen by the spongy and congested appearance of its lining membrane (Warren-Gould). In the midst of this abraded area a bleeding vessel may be found or a hemorrhage started by gentle friction. This will, I think, be well illustrated in the cases to be reported at the close of this paper.

The technic of the surgical treatment of gastrorrhagia due to ulcer naturally resolves itself more or less into the technic of the surgical procedure in gastric ulcer. An incision from three to four inches long is made in the median line between the ensiform cartilage and the umbilicus and the stomach exposed and carefully examined for changes on its exterior which might aid in locating the ulcer. Gauze strips should then be packed into the wound, carefully walling off the peritoneal cavity against the escape of stomach-contents. The stomach is then incised for a distance of from two and a half to three inches and its interior systematically inspected by inverting its wall from without piece by piece and bringing the mucosa opposite the incision, and if necessary everting it through the opening. Having found the ulcer, one of the following plans may be adopted:

1. Simple excision of the diseased mucous membrane and suture of the cut edges.

2. Resection of a portion of the gastric wall if the ulcer be deep, involving the muscular wall, or when there are several ulcers within a limited area.

3. The performance of a gastro-enterostomy. This procedure is indicated in cases in which a considerable area of mucous membrane is involved in a chronic catarrhal inflammation with numerous ulcers. This method may also be used in cases of large and deep ulcers, and is sometimes more satisfactory than resection of a portion of the gastric wall. After the lapse of a few months, the diseased mucous membrane becomes healthy, as is evidenced by the absence of pain and digestive disturbance. These symptoms are caused by spasmodic contraction of the pylorus producing stagnation of food, which is relieved by the anastomotic opening.

4. In cases of multiple erosion none of these methods seem to the writer to be practicable unless it be the procedure first mentioned, namely, excision of the diseased mucous membrane and suture of the cut edges. Better than this, I think, is the method adopted in the cases which will be reported—of submucous ligation by the purse-string ligature. This method seems to me to possess the following advantages: (1) It inevitably stops the hemorrhage. (2) There is practically no additional destruction of mucous membrane, as would be the case if the mucous membrane were excised. (3) There is little or no formation of scar tissue to contract and give rise to subsequent disturbance.

In connection herewith I submit reports of the following cases:

Case I.—Miss J., aged twenty-four years, seen in consultation with Dr. C. J. Sorcen. Previous history negative except an unsatisfactory history of gastric disturbance covering a period of several years. The symptoms during this time were not marked. There was at no time vomiting or marked pain, the greatest complaint being a slight distress after meals felt in the region of the stomach. On the night of November 17, 1900, following a very hearty meal the evening previous, the patient was seized with an attack of hematemesis. This ceased after a short time, and the patient was first seen by the writer on November 21, at five A.M.; at this time there had been a recurrence of the hemorrhage which had been quite profuse. Patient's general condition was good. Pulse 100. Temperature 99° F. Morphine was given and an ice bag applied to the epigastrium. There was no further hemorrhage until four days later, when there was a recurrence which was very profuse. Twenty-three attacks of vomiting of blood, all profuse, occurred from five P.M. till nine A.M. the day following. Condition of patient extreme. Pulse 130, very weak and thready. On local examination there was

general tenderness over the entire epigastrium, and at one point in particular, just over the cardia, there was a point of extreme tenderness. In view of the repeated and profuse hemorrhages operation was advised and accepted.

After the usual preparations of the field of operation the abdomen was opened by a median incision beginning at the ensiform cartilage and extending downward about three inches. The stomach was immediately found and brought into the wound and incised for a space of two and one-half inches longitudinally. Upon opening the stomach large quantities of semi-fluid blood and mucus escaped. This was carefully sponged away as it escaped, so that none entered the peritoneal cavity. The entire mucous membrane of the stomach was intensely congested and spongy and near the pyloric end were five eroded points that were bleeding very freely. These points were enclosed one by one in purse-string ligatures of No. 2 catgut, the hemorrhage ceasing immediately upon completing the ligation. The stomach was then closed with four rows of sutures, the first closing the mucous membrane, the second the muscular layer, the third the peritoneum. The whole was then covered by a row of Lembert sutures; the abdomen was closed in the usual way. The patient was in profound shock and an intravenous injection of salt solution was given while she was still on the table. Pulse after intravenous injection 160.

Following the operation the history was briefly as follows:

November 26th: Slept from eight to nine P.M. Ten P.M. vomited some mucus tinged with dark particles of blood. Passed twelve ounces of urine during night. Patient was given normal salt solution, one pint every hour per rectum, and strychnine, gr. $^1/_{20}$, every three hours.

November 27th: Pulse 110. Temperature 100. Vomited a little greenish mucus at eleven A.M. Expelled gas freely and passed urine freely.

November 28th: Pulse 120. Temperature 101° F. Several small emeses during day containing nothing but mucus. Patient put in Fowler position (reversed Trendelenburg). Passing gas very freely. Salt solution per rectum given every two hours and nutritive enemata every four hours. All very well retained.

November 29th: Pulse 112. Natural movement of bowels in the morning. Thin, watery stools and large amount of gas passed.

November 30th: Pulse 80. Condition excellent.

December 1st: Pulse 82. Temperature 99.8° F. Condition excellent.

From this time the course of the case was uneventful. On December 8th the patient was given one ounce of sterile water every two hours by mouth, the first since the operation, and on the day following was given small quantities of milk and lime water. Up to this time nothing whatever had been given by mouth since the day of operation. At the present time the patient is in perfect health and had been entirely free from all gastric symptoms.

Case II.—Mrs. M., aged twenty-eight years. Seen in consultation with Dr. C. H. Holt, of Red Jacket, on January 21st. I regret that I am unable to obtain fuller particulars of the early part of this patient's illness. The history that I have been able to obtain is as follows: Patient had been subject to gastritis (catarrhal) for about six years, for which she had been treated at different times with drugs and lavage with temporary improvement lasting for a longer or shorter period of time, when she would have an exacerbation and again take treatment for a time till relieved temporarily, when she would cease treatment and return to ordinary methods of life and diet. On January 17th she was seized with an attack of hemorrhage from the stomach, not very severe in character, and which ceased after a short time only to recur in a day or two. These slight hemorrhages continued until January 21st when she had several severe hemorrhages following each other in rapid succession. I first saw the patient late in the afternoon of the 21st. Condition at this time was as follows: Pulse 150, temperature 99° F. Patient extremely restless, face pale, pinched and drawn, mucous membranes bloodless. Vomiting blood, both fluid and clotted, every two or three minutes. Condition extreme. Immediate operation advised.

Patient was at once prepared for operation. The usual incision was made and the stomach brought into the wound. No external changes noticeable. Upon opening the stomach large quantities of mucus and fluid blood escaped. This was rapidly sponged away and the bleeding points were sought for. The conditions found were exactly the same as those described in the previous case. Namely, an intensely congested mucous membrane with numerous points eroded in the pyloric portion which were bleeding very freely. These points (thirteen in number) were ligated separately with the purse-string ligature and the wounds closed in the manner described in the preceding case. Operation lasted one hour and twenty minutes. Pulse at close of operation 180. Normal salt given intravenously while patient was still on the table. Strychnine, gr. $^1/_{30}$, given every two hours for twelve hours, also salt solution per rectum every three hours.

The following day the pulse had fallen to 130. No further hemorrhage had occurred, and the patient expressed herself as feeling very well. From this time until January 28th the patient improved rapidly in every respect from day to day. At noon of January 28th the patient complained of feeling nauseated and became very restless. The pulse rose from 98 to 110 within thirty minutes. A further hemorrhage was diagnosed, but as there was no vomiting and as the general condition was fair, the usual temporizing measures were adopted. At 11.30 P.M. patient again complained of nausea and shortly after vomited a mouthful of dark blood. At 11.45

there was another attack of vomiting at which time she brought up a little blood. At 12.30 A.M. a very profuse hemorrhage occurred. The pulse by this time had risen to 140. Another profuse hemorrhage at 10 A.M. Pulse 160. A second operation was advised and performed at once.

The points previously ligated were found to be in perfect condition, but in the cardiac end of the stomach were some six or eight points that were bleeding very freely. These were ligated in the manner previously described and the operation completed. Just as the closure of the abdomen was completed the patient suddenly collapsed and died in a few minutes.

The particular points to which I would call your attention in connection with these cases are the following: (1) The fact that they were cases of multiple erosion, a condition usually thought to be due to mechanical congestion from some source or other, and yet in which no evidences were present pointing to any cause which might produce such mechanical congestion. (2) The fact that here are two cases with distinct localized tenderness, pains radiating to a localized point in the back, and gastric hemorrhage, and yet with no evidence of the typical gastric ulcer usually diagnosed with these symptoms present. (3) The fact has been demonstrated fully, I think, that in this particular class of cases, at least, the method suggested is the only practicable way of controlling the hemorrhage.

A CASE OF ISOLATED NEURITIS COMPLICATING TYPHOID FEVER.

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WIDELY disseminated neuritis complicating and following acute disease has been observed many times and is quite possible of explanation by assuming a specific action of the toxins of the disease or a special vulnerability of the nervous tissue. Localized neuritis, however, is a much rarer complication.

With the desire of placing on record a case of isolated neural inflammation complicating typhoid fever, the following patient was presented before the Cleveland Medical Society, his condition demonstrated and the following history obtained: M. K., male, white, laborer, thirty-eight years of age, born in Poland, married and the father of three healthy children. He has never suffered from any severe illness and has always been a strong, healthy man. On June 8, 1901, he developed a typical case of typhoid fever and was attended by Dr. P. S. Smigel. His fever pursued a normal course and he was convalescent at the end of three weeks. Contrary to orders he began to eat heartily, consuming at one meal over a pound of beefsteak. Twenty-four hours after this indiscretion he was seized with chills, return of fever, abdominal pains, and much diarrhea. His temperature rapidly ascended to 104° F. and he became wildly delirious and so unmanageable that they were compelled to send him to St. Alexis Hospital, where he came under the care of Dr. J. V. Kofron. He remained delirious for a period of nearly three weeks and had very high temperature. His delirium was so furious that it became necessary to place anklets and wristlets on him in order to secure him to the bed.

About four weeks later he became convalescent, when it was discovered that he had considerable swelling of both limbs, complained of much pain in them and of some numbness and tingling in the distribution of the left external popliteal and left ulnar nerves. There appeared on the left ulna and on the right tibia some hard tender nodes which were evidently periosteal tu-

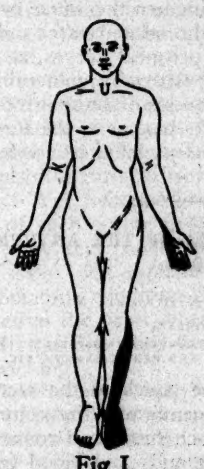

Fig I.

Fig. II.

mefactions. He also complained of much pain in the neighborhood of the sternum opposite the fourth costal insertion, at which point a nodular swelling appeared that was tender to the touch.

When I first examined him, October 13, 1901, both feet and legs were edematous, the periosteal nodes had disappeared from the shins and ulna, but there was an indurated bluish swelling at the fourth costosternal articulation which was undoubtedly suppurating, since examination revealed a marked leucocytosis, and physical evidences were also in favor of a deep-seated fluctuation. He was referred to Dr. C. B. Parker, who concurred in my expressed opinion of necrosis; he advised operation but it was refused. When the shoes were taken off it was noted that the left toes dropped downward, and a left foot-drop was particularly manifest while walking.

Examination revealed the presence of anesthesia corresponding to the integumental distribution of the left external popliteal. (See Figs. I. and II.). The plantar surfaces of the foot and toes were sensitive.

Examination of the hands revealed a registry of forty with the left hand and forty-five with the right. The fact that the patient was left-handed affords quite positive evidence that the left hand-grasp was weakened. He complained of numbness and tingling in the distribution of the left ulnar nerve. Examination showed the absence of pain and touch sensation in the distribution of the left ulnar nerve which is well shown in the accompanying cutaneous charts.

It might be assumed that these local paralyses were due to pressure exerted on the nerves during his illness by the bands which were placed on his limbs for restraining purposes, but investigation shows that the bands were not placed about the knees nor about the arms above the elbows; hence it is quite clear that the pressure exerted by them could not have been the cause of the neuritis. All intoxications and most poisons known to produce neuritis are quite certain to affect in a selective manner the same nerves which were inflamed in the related case; indeed, the external popliteal or peroneal nerves, as well as the ulnars, seem to be especially vulnerable to the action of the various toxins of acute infectious disease; this is particularly true as to the former. Why this obtains we have no definite knowledge.

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PATHOLOGY OF EMPYEMA OF THE ANTRUM OF HIGHMORE.[1]

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THE air-cavities in the bones of the face are all lined with mucous membrane, the columnar ciliated epithelium of which rests on a connective tissue stroma with few glands and blood-vessels all nourished from the periosteal lining. They all communicate with the common nasal chamber by small openings, so that for the most part they resemble a set of flasks with one narrow mouth.

That these cavities have some important function, aside from incidentally contributing to the lightness of structure of the bones enclosing them, seems hardly to be doubted. We naturally think of a function suggested by their form and relation. A glance at the anatomy of this region shows the very intimate relations which exist between the frontal, ethmoidal and maxillary sinuses which are so placed that they have a common opening in the middle meatus of the nose into that slit-like cavity called the hiatus semilunaris at a point situated about the very middle of the nasal breath way, or air-passage—practically three flasks with a common mouth over which the wind plays. Now, what well-known principle in physics does this arrangement suggest? You will at once think of the Sprengle air-pump. Sprengle conceived the idea of pouring mercury down a capillary funnel-tube connected laterally with a flask which he desired to pump free of air; as the mercury fell past the open mouth of the flask the air was gradually exhausted from it. This you will at once recognize as the principle so universally utilized in the atomizer, only here, instead of having a closed flask, we have one connected with the outer air, so that the constant air-pressure causes the fluid in the flask to be drawn out continually to the end of the atomizing tube and there spread in scintillating spray. What useful purpose does Nature wish to serve by having a Sprengle's air-pump in constant operation here from the earliest hours of childhood throughout the whole of life? The manifest purpose which such an arrangement of physical forces serves is that of abstracting moisture from these cavities. The effect of such a function is simply that of cooling the tissues surrounding them by abstracting their heat in vaporization. This is not a theory nor a fancy which I am giving. I am rehearsing the physical facts which obtain in the peculiar form and interrelation of the nasal chambers with their adjacent sinuses.

If, then, these hollow chambers are meant to functionate as air-pumps and evaporating surfaces, the existence of an empyema would destroy all such function and would *a priori* bring with it a certain kind of disturbance of the economy connected with the organs and parts of the head lying in and around the sinuses. Now, clinically, what is the constant testimony of those who have a cold in the head, an influenza, or a sinuitis of one or more of these air-chambers, or other pathological condition of the parts affecting them or their nerve- and blood-supply? Simply this, that a sense of fulness exists in and around the face and forehead, the head feels compressed and heavy, the faculties are dull and irresponsive, the memory fails, concentration is impaired, and altogether an indefinable sense of ill-being exists which the patient is seldom able to express satisfactorily to himself or to the physician. In other words, the air-cavities are water-logged and the subjacent organs are deprived of that comfort which should come to them by the simple process of evaporation and abstraction of heat.

Although the subject of empyema of the antrum of Highmore has been well studied by many eminent specialists during the last quarter of a century, there has not been a very general recognition of this condition and its pathological importance.

It is but a short time since I was in conversation with a distinguished physician, who is a member of this Society, and learned that he had gone through a most trying experience, extending over a long period of time, enduring great suffering and getting no satisfaction nor relief under the hands of eminent and willing specialists, until by accident it was discovered that he was the victim of an empyema of the antrum of Highmore. I know another physician, also a member of our County Society, who gave up a large and lucrative practice in a distant field be-

[1] Read before the Brooklyn Pathological Society, March 13, 1902.

cause of sufferings which he could no longer endure there, not knowing till long afterward that all his trouble had its origin in a diseased antrum, which trouble disappeared promptly, as in the other case, when properly recognized and treated. This lurking, obscure and ill-defined sense of great discomfort, the exact location of which seems not to be more evident to the patient than to his physicians, even though the patient himself happens to be a physician, is one of the characteristics of this disease and one which I mention first and place in highest relief in treating of its pathology. Put in a general way, this observation points out that empyema of the air-cavities of the bones of the face gives no certain and pathognomonic symptom of its existence, unless it be that, in a large percentage of these chronic empyemata, there is such a disturbance of the economy of the nervous system as to lead to consultation with the nerve specialist. Greville MacDonald has said that the diagnosis of antral disease is one of the most difficult points in the domain of pathology. The practical deduction from this is that all cases of ill-defined but profound disturbance of the nervous system should direct the attention to possible pathological states in connection with the sinuses opening into the nasal chambers.

I have for some time been watching with deep interest and sympathy the unfortunate sufferings of a patient who has all her life been the subject of a congeries of varying symptoms most distressing to her, yet not so great as to incapacitate her for her work as a student and teacher. She is an utter stranger to sound or restful sleep. She has been in daily companionship for a score of years with pain—pain in the head, pain in the chest, pain in the limbs, numbness and exquisite tenderness to even light touch on any part of the body. Frequently she had vertigo, things seemed to be moving rapidly to the left; being but momentary, this did not alarm her. At times her faculties seemed clouded; she lacked the power of concentration; and her memory, which was almost a faultless faculty, would temporarily fail her. She was nervous and hypersensitive to pain but keenly intellectual and rational. Her hearing was painfully acute, so that a watch would keep her awake. When in slumber she would often suddenly awake with a start of alarm. With all this she did her daily work and put on flesh. The desire and need for relief led her to consult her physician regularly, but palliatives were all she received. She needed glasses and the oculist suspected nothing else. At last she found herself referred to me for relief of a dacryocystitis, and then I saw with most painful vividness the long distressing story of her sufferings. One look at those atrophied nasal chambers with their bad-smelling crusts, the edges of which glistened with pearly drops of fresh-flowing pus, showed the undeniable evidences of ancient, multiple, two-sided sinusitis with attendant involvement of the nasal duct. It explained her sickening parosmia, her pains and vertigo, and called for as prompt relief as could be given.

I draw this picture for the purpose of showing how easily cases of this kind, so manifestly in need of help, can pass under the observation of men of skill and knowledge in their profession and yet receive no adequate help because their trouble is not found out nor the cause removed. I say all this merely to emphasize that feature of these sinus cases referred to above—positive and genuine discomfort often most profound in its character and yet so vague and varied in its symptoms that even a neurologist will at times miss its true source and quality.

Having said the above I hope I have said what is most useful and valuable to say; and it is not my purpose to try to do the impossible by entering on an exhaustive study of the pathology of this disease. I have reviewed nearly all modern literature on the subject as far as it was within my reach; and my own conception of the present status of this pathology may be briefly summarized.

In the first place, the poverty of the blood-supply to the thin lining of these air-cavities, explains the relative paucity of granulations found when chronicity of inflammatory process is considered, and also the rarity of severe hemorrhages in these cases. Yet Scheppergrell,[1] in 1894, met with a case of such severe hemorrhage that the antrum had to be kept packed for four weeks to obviate fatal issue. He explains it by supposing that an angiomatous condition of the mucous membrane existed at the point where the trephine entered—which was disturbed by each attempt to remove the packing.

Lücke[2] (Strasbourg) narrates the case of a man of twenty-six years in whom bleeding characteristic of a vascular tumor occurred which required packing. The tumor grew; a second operation was done; a bony tumor was found covered with granulations. A large part of the tumor was removed with a chisel. The hemorrhage was so profuse that transfusion was done to save the patient. Tampons were kept *in situ* four weeks. Recklinghausen examined the tumor and pronounced it an angioma ossificans, or osteoma angiomatosa.

I have elsewhere[3] described a case in which alarming hemorrhage took place. The case was briefly this: A young man had had frequent severe nose-bleeds extending over a period of four years, at the end of which time double ptosis and diplopia developed. His general comfort was so decided that antrum trouble was not at first suspected by me, though it had been suspected by Dr. Peter Scott, his family physician, who had sent him to me. A careful examination of the nose revealed enough faults, however, to account for his ocular disturbances, and to these my attention was at first addressed with slow but sure success. There was no discharge from either nostril, except as it accompanied the process of repair after operative interference. The third

operative step consisted in freeing the left middle turbinate from adhesions to the outer wall of the middle meatus and crushing its bulbous anterior end. Three days after that his remaining photophobia had disappeared and his diplopia had lessened so that he could at times look to the right without occasioning it. The ptosis was also less. Twelve days later his vision, which at the beginning had been $^4/_{10}$, was $^6/_{10}$ with each eye, and the ocular muscle tests were greatly improved. Five days after this, *i.e.*, three weeks after the third operative step, the patient had profuse bleeding and with it abundant purulent discharge from the left nostril. There had been no pus previous to this particular day. Now, however, at the point at which the middle turbinate had been freed from its adhesions was seen for the first time an abundant flow of most foul-smelling pus. There had been no odor before this time.

Enough of the left middle turbinate was next removed to give free access to the ethmoid cells and maxillary sinus. A loose tampon of cotton moistened in carbolic solution was put in to remain two days. Its removal was accompanied by hemorrhage and a free flow of pus. A similar tampon was again used. The left malar bone and the last upper left molars for the first time manifested tenderness. Throbbing of the temples and tenderness of the scalp were also complained of. With this second tampon *in situ* he was seized two days later with alarming hemorrhage and both nostrils were plugged to check it. I removed these plugs, found no bleeding-point and sent him home without tampon. I was called the next morning to his house to find him blanched by bleeding during the night. I removed the tampons he had himself introduced and replaced them by a loose one after again failing to find a bleeding-point, feeling certain in my own mind that the bleeding was from the antrum. He had no further hemorrhage, but pus continued to flow freely from that nostril for many days, during which the teeth and the malar bone were tender and the outer wall of the middle meatus was swollen, inflamed and tender, giving the character of an acute grafted upon a chronic empyema. At the end of two weeks diplopia and all other eye symptoms were gone, the pus discharge had about stopped; it soon after completely ceased and the ocular muscle tests showed absolutely healthy behavior.

In explanation of the repeated hemorrhages we may suppose that pus and granulations had been bottled up in the antrum by the adherent middle turbinate which may have been made adherent by a previous inflammatory condition. The final hemorrhage which preceded the prompt cure, without treatment addressed to the antrum, may have been due to complete exsanguination and collapse of granulation tissue with restoration to normal condition and behavior, or it may have resulted from active engorgement accompanying the new inflammatory process. To me the former seems most probable and at the same time accounts for the history of previous nasal hemorrhages.

Some of those who heard this history questioned the diagnosis because the aid of transillumination or exploratory puncture and irrigation was not invoked; they argued they had never seen a chronic empyema get well without radical opening, and it must have been another sinus than the antrum involved in this case. They were evidently not familiar with Dr. Jonathan Wright's estimate of the value of transillumination: "Good enough to amuse the patient, but wholly unreliable for diagnosis." There could have been no justification for exploratory puncture and irrigation in a case that was evidently getting well and proceeded to get well, no matter what might be missed thereby in diagnosis. As to spontaneous recovery, if one has never seen it, it does not necessarily follow it cannot happen, nor is that an argument to invalidate a diagnosis. But it ought to be generally known by those able to criticise that spontaneous recovery has occurred in both acute and chronic cases.

J. Garel[4] (Lyons) instances two cases of spontaneous recovery without treatment. Gradle[5] states that "antral disease of nasal origin may heal spontaneously." Bergeat[6] claims that spontaneous healing of chronic empyema is proved by the fact that the antrum has been found filled with connective tissue. Sendziak[7] gives the history of a case of double antrum empyema accompanying a case of diphtheria in a girl of eighteen in which spontaneous recovery took place.

Finally W. Lamb[8] (Birmingham) showed before the British Laryngological, Rhinological and Otological Association, October 28, 1898, a preparation illustrating the spontaneous cure of empyema of the maxillary antrum. The features of his preparation were as follows: (1) Carious second molar tooth, the caries affecting the palatal fang, the tooth firm in its socket. (2) Depressed and pitted cicatrix of the whole middle meatus most marked anteriorly where pus from the antrum usually lies. (3) Projecting upwards from the floor of the antrum a short cylindrical tube of bone leading down to the socket of the palatal fang of the carious molar. When the antrum was opened this little tube of bone was perfectly covered with continuous mucous membrane.

Then the author interprets the sequence of events: (1) Dental caries spreading to the floor of the antrum causing a purulent infection of the cavity. (2) Chronic empyema, overflowing, as usual, into the middle meatus and causing a local atrophic rhinitis. (3) Formation of a large carious opening in the floor of the antrum, and the gradual drainage of the cavity through the palatal fang of the carious molar. During this process of drainage new bone was gradually deposited round the opening, forming the little tube. (4) Discharge ceased and the tube healed over and the tooth was roughly filled with creosote wadding and amalgam tightly packed in.

As briefly as possible I shall merely outline

the pathological findings. The pus of empyema is characterized by its pale lemon-yellow color and trimethylamine[9] odor due to the presence in it of the aspergillus fumigatus, which Bayer[10] had previously likened to the odor of old herring-sauce, dependent on the admixture of methylamine and di- and tri-methylamine. The other pathogenic organisms found in it are the staphylococcus pyogenes aureus; bacillus pyogenes fetidus; streptococcus pyogenes and Pfeiffer bacillus in pure culture; pneumococcus; bacillus pyocyaneus; colon bacillus; bacillus of diphtheria; tubercle bacillus.

Weichselbaum,[11] of Vienna, in a postmortem of all the accessory cavities of a large number of patients dead of influenza, found that inflammation of one or other antrum existed in 90 per cent. of the subjects examined. Both J. N. Mackenzie[12] and George Pinder[13] have noticed the discharge of a membrane from the antrum during irrigation and described by Pinder as pyogenic. This is an unusual finding. Scheppergrell found a membrane covered with aspergillus fumigatus. Besides pus, cheesy accumulations and debris are sometimes found. Luc[14] differentiates antrum pus from frontal sinus pus by the fact that antral pus is a little granular and never creamy, like that from the frontal sinus. Cysts containing pus have been found by Gradenigo[15] (Turin).

The antrum has been found filled with polypi.[16] Sometimes the antrum has been found subdivided into compartments and pus hidden in one of these.[17]

Hypertrophy of the tissues around the meatal opening is commonly found, often associated with polypi; and stenosis of the middle meatus, due to various hyperplasias, is a feature of empyema.

Sometimes there is distension of the antral cavity, but not, as was formerly supposed, on account of hydrops antri. Caries of the bony walls and of the neighboring bones and septum have been noted by Sir F. Semon[18] as accompaniments of empyema. Orbital cellulitis has been reported by Juler and Small[19] in empyema from a carious tooth.

Fink[20] (Hamburg) had a case of carcinomatous tumors filling the antrum in one who for twenty-four years had his right nostril filled with polypi. I have removed polypi which filled both nostrils in a man over seventy years of age who had had his nostrils thus filled for over fifty years, and there was, as far as I could see, no evidence of associated empyema.

Lichtwitz[21] found lung symptoms characteristic of tuberculosis in seven out of 147 cases of empyema disappear on curing the empyema. Bryan[22] gives a case of caries with empyema in which a needle was broken off in the tooth and gained entrance to the antrum. Others have reported teeth (Michael),[23] sequestra of bone (Spicer),[24] broken tubing (Combe)[25] and other foreign bodies[26] keeping up a chronic empyema. Lichtwitz[27] gives five cases of sequestra separating in form of rings from the circumference of the opening made by a rapidly-running electric drill by means of which the antrum was opened. Richardson[28] reports two cases of asthma in empyema of the antrum; Dundas Grant,[29] a case of fits; Hudson,[30] violent clonic contractions of the facial muscles recurring every fifteen or twenty minutes and lasting from eight to ten seconds.

Now, as to the etiology, we know dental caries has been one fruitful cause of empyema. Formerly it was alone blamed; we now know it is not the sole cause. We recognize a rather frequently occurring acute maxillary sinusitis. Naturally the chronic would ensue in many cases, though the tendency is to spontaneous cure. But the swelling and hyperplasia of an acute condition may make resolution impossible by permanently closing the meatal opening.

Traumatism is a known certain cause, but not always ends in empyema. I saw a case yesterday in which a baseball had caused deformity of one antrum without producing an empyema. Luc[31] found one case caused by erysipelas which changed his opinion as to carious teeth being the sole causative agent. The pathological quarrel centers around nasal polypi. Grünwald[32] (Münich) and Lichtwitz[34] claim nasal polypi as a cause. Bosworth[33] found nasal polypi causative in six cases; Myles, in ten cases. Ziem[35] claims they are due to sinus suppuration. Woakes[36] claims they are due to necrosing ethmoiditis. Luc[35] denies the entity of necrosing ethmoiditis and claims polypi are due to folds in the region of middle turbinate which favor edematous distension. Zuckekandl[36] claims extension of rhinitis to antrum as cause. E. Frankel[37] of Hamburg regards general diseases as pneumonia, measles, scarlet fever, diphtheria, cerebrospinal meningitis and acute peritonitis as causative. Wagner[38] gives one case unmistakably due to lead-poisoning.

It is impossible here further to consider the pathology in that class of chronic cases which Jeanty[39] described under the name of latent empyemata further than to state that they have but one characteristic—hypersecretion, continuous or intermittent, odorless or fetid; and I would like to note in closing the statement of Fletcher,[40] who is both a dentist and a surgeon, that he treated one case of empyema in which the teeth were made pulpless by the disease of the antrum. This, he thinks, is probably more common than the reverse, since many teeth have roots perforating into the antrum.

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THE MISUSE OF GLASSES.[1]

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ON January 23d I examined the following case: A young man, twenty-eight years of age, healthy and strong, living in a small country town, could not read or write much for two months because soon after he began his eyes ached. He never had any headache and during school life his eyes never caused him any trouble. He remembered he had a cold shortly before the present trouble began. An oculist had prescribed glasses (+1D.) which he had been wearing these two months, but without any relief.

The examination showed orthophoria, normal fundi; and under homatropine V. 20/15 with +.75D. The retrotarsal folds of the upper lids were very red and slightly swollen. It was a plain case of conjunctivitis and a few applications of protargol (5 per cent.) to the retrotarsal folds, followed by daily instillations of a solution of boric acid (2 per cent.) and alum (⅕ per cent.) relieved the patient within two weeks, so that he could read again with perfect comfort for hours, though on my advice he laid aside his glasses directly after the first visit.

This is one instance of many in which the discomfort caused by conjunctivitis is mistaken for asthenopia and superfluous and useless glasses are inflicted upon the patient. An unprejudiced mind finds it difficult to understand how in this case an oculist could have pinned his faith upon the curative power of lenses when the whole history of the patient and the findings of the examination presented no evidence of eye strain. The patient never had suffered from headache in his life and had not experienced the slightest eye trouble while in school. These facts, I think, are of the greatest significance; for the great demands our schools put upon the vital forces of a child, together with the greater susceptibility of the nervous system of the growing organism, render the period of adolescence an especially favorable field for the display of the disturbing effects of ametropia upon the nervous system. Slight degrees of ametropia are a prolific source of headaches during this critical period in life; and we have frequent occasion to correct slight degrees of ametropia for the relief of asthenopic symptoms in school children. But many of these children after leaving school, if in perfect health, can discontinue the use of their glasses without suffering any inconvenience or discomfort, though their refraction errors have remained unchanged. This only goes to prove that the nerve forces of a normal young adult are abundantly able to meet the special demands of moderate degrees of ametropia without the least disturbance of their equilibrium.

Whenever, therefore, a healthy young adult complains of discomfort in using his eyes, and upon searching inquiry no evidence can be obtained that during school life he had suffered from eye pains or headaches, I think we should not accept an existing slight ametropia as the cause of his discomfort unless the most scrutinizing examination fails to detect any other local or general condition which might account for the apparent asthenopia. While I do not, for a moment, countenance the practice in vogue in many large dispensaries, especially in Europe, where patient after patient with aching eyes is dismissed after a casual examination as a case of conjunctivitis because the eyes are red and watery, when a careful examination of refraction would show that glasses are needed, I maintain that in many instances, like that of the case I first mentioned, glasses are prescribed when the patient's complaints are not caused by the existing ametropia but are due to unnoticed pathologic conditions of the conjunctiva. In making this statement I do not intend to cast any reflection upon the carefulness and ability of the attending oculist. I know my confrères are as painstaking in their examinations and as able as I am to tell conjunctival changes when they see them, and if, under certain conditions, I see them where they do not, it is not because they are less careful in their examination or less competent, but because we pursue different methods in the examination of the lids.

The prevailing method of examining the conjunctiva is first to expose the conjunctiva of the lower lid by drawing it down and away from the eyeball and then to evert the upper lid to inspect its conjunctival surface. If the conjunctiva thus exposed appears normal, the examiner comes to the conclusion that, nothing being wrong with the lids, the discomfort of the patient in near work must be due to the present error of refraction and that glasses must be prescribed. But does the simple eversion of the upper lid expose

[1] Address delivered at the Seventh Annual Meeting of the Western Ophthalmologic and Otolaryngologic Association, Chicago, April 11, 1902.

the whole expanse of conjunctiva? Or does it not conceal from our view the retrotarsal fold? And is not this fold sometimes the seat of marked pathologic changes while the palpebral conjunctiva may present a normal condition? The examination of the lids, therefore, cannot be said to be complete unless it includes the inspection of the retrotarsal folds of the upper lids; and they can be exposed to our view very easily by the following procedure: While the free border of the everted upper lid is firmly pressed by the thumb or index finger of the left hand against the supraorbital margin, the forefinger of the right hand placed upon the lower lid pushes the latter upward until it pretty well covers the cornea, when a gentle but steady pressure is made upon the globe as if to push it backward into the orbit; a slight back pressure of this kind is sufficient to make the retrotarsal fold come down from behind the everted lid. The whole manipulation is easy and gentle, harmless and painless, and can safely be used except in cases of deep and extensive corneal ulcers. I have tested its practical value in a great many cases, but hardly ever with more telling effect than in the following instance: About ten years ago a physician who was taking postgraduate courses in this city consulted me about his eyes. He had been seriously handicapped in his studies because he could not read up at night about what he had seen in the clinics during the day, as his eyes began to ache and his lids to droop after reading half an hour. He had consulted the professor of his school, who first prescribed reading glasses for a slight hypermetropia; and when these glasses (+1 D.) failed to bring the expected relief, he advised an operation for ptosis. It was in regard to the advisability of this operation that the doctor wished to obtain my opinion. When I examined the lids in the usual way the visible conjunctiva showed nothing abnormal; but my back pressure method at once revealed the retrotarsal folds thickly studded with follicular bodies. I, of course, had to advise against the proposed operation, and after the follicles had been removed by expression and the eyes had been treated with boric acid for ten days, the doctor could take up his studies and enjoy reading for hours with comfort, though he did not use his glasses. He assured me the other oculist had repeatedly everted the lids for examination and he wondered why he did not see the follicular condition of the folds.

You will now understand why he failed; you will also fully appreciate the force of my advice that in healthy young adults, especially if they have not suffered from asthenopic complaints during school life, we should always make a most searching examination of the conjunctiva before we suspect a slight refraction error as the cause of the patient's complaints; because failure of detecting present pathologic conditions of the conjunctiva leads to misunderstanding the etiology of the complaints and to prescribing glasses which are of no benefit to the patient and therefore superfluous.

Another class of patients who are not infrequently the victims of superfluous glasses are the sufferers of blepharitis. This inflammation of the lid margins, no matter how slight, is always attended by more or less hyperemia of the conjunctiva, and owing to this hyperemia blepharitic eyes are exceedingly sensitive and irritable, easily disposed to become red, watery and painful. These symptoms are particularly likely to develop during prolonged near work, so that blepharitic persons applying themselves to close work (bookkeepers, stenographers, students, seamstresses) are usually complaining of blurring of vision, painful eyes, and often even of headache. In many of these cases the scales along the lid borders are like fine dust and easily overlooked; the patient's complaints are taken for accommodative asthenopia and treated with glasses. Now, if such persons have faithfully used their glasses for a year or two without benefit; if then they are relieved of their complaints in a week or two by the proper treatment of the blepharitis and thereafter continue their work with perfect comfort though they do not use glasses, we are forced to the conclusion that the glasses were unnecessary. No other conclusion seems to me permissible in cases like these:

Case I.—January 21, 1900. Mr. J. F. E., twenty-five years old, bookkeeper for four years; can work over his book several hours in the morning with comparative comfort; toward noon, however, his eyes get red, watery and burning and in the afternoon a dull headache often compels him to interrupt his work. During the past year he has been treated with various eye waters and has worn glasses (R.E.+.50 cyl. ax. 100; L.E.+.25 cyl. ax. 70), but without any benefit. Lid edges slightly red and covered with fine scales like dust. R.E. 20/15 with +.50 cyl. ax. 180; L.E. 20/15 blurred by +25 sph. or cyl. Lids were treated with ichthyol ointment; glasses discarded. January 31st noticed improvement after two treatments; lids now well and he can do a full day's work without the slightest inconvenience.

Case II.—Miss C., nineteen years old, came to me last November. For four or five years eyes smarting, burning and watering. During the past two years wearing glasses (.25 cyl. ax. .90); nothing was ever done to her lids. Lid edges very red and thickly coated by soft epidermis scales. Under homatropine each eye V. 20/15 with + .25 cyl. ax. 90. Glasses were discarded; lids treated with nitrate of silver and ichthyol ointment, and in two weeks the blepharitis was cured and she could resume her work as dressmaker without further inconvenience.

In the second case the blepharitis was so marked that it could not have been overlooked by the attending oculist, and the fact that he paid no attention to it makes me suspect he believed in the false doctrine that refraction errors

are the cause of blepharitis and their correction by glasses cures the lid trouble.

The relation of ametropia to blepharitis was first brought to our notice by Dr. Roosa of New York, in a very interesting paper read before the International Ophthalmological Congress in New York in 1876. He summed up his observations in these sentences: "Ametropia seems to be the condition of most eyes affected with blepharitis ciliaris. Hypermetropia is the error of refraction most frequently associated with blepharitis ciliaris and when blepharitis is associated with errors of refraction the cure of the edge of the lid is very much facilitated by and sometimes depends upon the correction of the ametropia."

You will observe, Roosa claimed neither that ametropia causes blepharitis nor that correcting glasses alone would cure it. What he maintained was that an existing blepharitis (like an existing conjunctivitis) may be aggravated and our treatment may be interfered with by the adverse influence of existing ametropia. The practical conclusion to be drawn from these observations is that the refraction of blepharitic patients should always be examined, and in refractory cases the ametropia should be corrected because it is very probable that in such cases eye strain frustrates our therapeutic efforts, and that the removal of this obnoxious influence will greatly aid the local treatment of the lids.

Dr. Keyser, however, writing on the same subject one year after Roosa, expressed the belief that ametropia was in many if not in all cases, the direct cause of blepharitis, and although Roosa's report showed that in the great majority of his cases the hypermetropia was of a low degree (one dioptry and less) we find in one of the most widely circulated modern text-books this statement: "The usual presence of considerable degrees of ametropia has led to the belief that this causes blepharitis (Roosa)." And this statement is followed by the advice that in all cases the refraction of the eye should be ascertained and any anomalous condition corrected by suitable glasses. Thus the impression is created that the chief, if not the only service to be rendered to blepharitic patients is the prescription of glasses, and as with our present tests we can easily find an ametropia of a quarter or half dioptry in almost any eye, physicians will always find an excuse for prescribing glasses to blepharitic patients; but if they keep track of these patients they will also find these weak glasses usually of no value because the additional accommodative work imposed upon the eyes by these low grades of ametropia is too trifling to create so much local disturbance, as is manifested by the inflammation of the lid margins.

I am not of those who consider the correction of low degrees of ametropia superfluous under all circumstances. On the contrary, I have long ago convinced myself that weak lenses have their sphere of usefulness, and in 1894 wrote a paper in their defense, from which I beg to quote the following passage clearly defining my position: "In the sight of these clinical proofs, it must be conceded that these weak cylinders are not superfluous glasses; that their therapeutic value is not mythical, but real; and that the oculist will render his patients a great service by prescribing these weak glasses wherever in his judgment he has reason to believe that the existing low degree of ametropia is the source of the patient's distress.

"We must not forget that the eye is the most successful in correcting by accommodative efforts the optical disturbances produced by slight degrees of hypermetropia or astigmatism, while in the higher degrees of these refractive errors it does not succeed, and therefore abandons the efforts. The moderate degrees, therefore, are the prevailing errors of refraction found in patients complaining of the symptoms of eye-strain.

"The degree of ametropia does not constitute the principal condition in the production of distressing symptoms, and experience does not sustain the statement that hypermetropia or astigmatism less than 0.75 D. seldom causes discomfort or headaches. The state of health, the condition of the nervous system, the occupation are very important factors, and frequently account for the fact that in many persons a slight hypermetropia or astigmatism causes great distress, while other persons never experience the slightest discomfort from the same ametropia in kind and degree, notwithstanding steady use of the eyes.

"Many eyes can endure a great amount of strain with impunity, while other eyes are so constituted that their powers of endurance are quickly exhausted. One person may need glasses for the correction of a small amount of ametropia, while in another person the correction of a much higher degree is unnecessary and glasses would be superfluous. We can not draw the line at a certain amount of ametropia; but should correct it, no matter how slight in degree, whenever it leads to disturbances for which eye strain constitutes a frequent cause."

To be sure, I am not prejudiced at all against weak lenses; I do not oppose the correction of ametropia because it is of an insignificant degree; but I do object to the indiscriminate prescribing of glasses. Glasses are no ornament; they do not improve the personal appearance or the facial expression; they are a nuisance at best and, therefore, should not be inflicted upon patients unless we have good and sufficient reason to believe their complaints are caused by the existing ametropia.

Refraction work has become a very prominent and important part of our practice; it is done with more care and greater accuracy in this country than anywhere in the world; and has achieved many brilliant and often unlooked-for triumphs. But dazzled by these brilliant achievements, some oculists seem to have gone refraction-mad; they attribute every discomfort in the use of the eyes to eye-strain; they fairly hunt for refraction errors and imagine they are doing scientific work if they prescribe glasses for any degree of ametropia they can detect. This one-sided tendency

may sometimes lead to absurd consequences. I will illustrate by the following two instances:

Case I.—In January, a woman from Iowa, forty-four years old, consulted me on account of asthenopia. For more than ten years she had been unable to read because her eyes began to ache, after a short attempt. She was a confirmed neurasthenic; her eyes showed no disease; V. of R.E. 20/200, with — 4 cyl. ax. 15 20/70; L.E. 20/20; with + 1.50 smallest print very distinct; but after reading fifteen minutes pain compelled her to stop, even if the right eye had been closed all the time. This woman had been constantly wearing glasses (R.E. — 5 cyl. ax. 180; L.E. + .50 D.) for the past ten years which were given her by an experienced oculist in this city. Now, was it reasonable to expect any good result from the correction of the anisometropy in this case? The sight of the uncorrected right eye is so poor that the woman depends for seeing entirely on her left eye, and the kind and degree of the asthenopia certainly make it impossible to better the vision by any spontaneous effort of the ciliary muscles. Hence eye strain is evidently not the cause of the woman's trouble and therefore the correction of the astigmatismus of the R.E. of no use. But suppose the correction would make the vision of the R.E. fairly good (20/40 or 20/30), would it be likely to relieve her trouble? I think not; on the contrary, I believe it would increase her misery, by adding all the distress of hyperphoria to her old troubles. For the concave cylinder with horizontal axis acts like a vertical prism as soon as the visual line passes below or above the plane of the cylinder axis; and Dr. Jackson showed (*Ophthalmic Record*, Jan., 1902) that the prismatic effect of a 4 D. lens amounts to 1 degree for every 2.3 mm. decentration. For obvious reasons the line of vision can not remain in the plane of the cylinder axis in all the acts of looking; in reading, for instance, it will necessarily pass 2, 3, or 4 mm. below this line. And as this is equivalent to decentering the cylinder, it is clear the — 4 cyl. would necessarily cause a distressing vertical diplopia.

Case II.—A gentleman from Michigan, forty-two years old, has tried for twenty years to obtain relief from headaches and eye pains. He has had various glasses, the last pair (R.E. —1.50 cyl. ax. 180; L.E. + 1.25 cyl. ax. 180.) made him so dizzy and nervous that he could not wear them five minutes. I found R.E. V. 20/30 with —4—1.50 cyl. ax. 180; L. E. V. 20/20 with 50+ 1.25 cyl. ax. 180. But with these compound lenses as well as with the cylinders alone he had vertical diplopia, the images separating perceptibly under the slightest movement of the eyes upward or downward. When a red glass was put before the right eye, and the patient looked down, the red image was the upper one; and when he looked up, the red image was the lower one. We can easily account for these phenomena; for the lower half of the concave cylinder of the right eye acted like a prism base down, and its upper half like a prism base up; while the lower half of the convex cylinder of the left eye acted like a prism base up, and the upper half like a prism base down. Hence, the prismatic effect of both cylinders acting in opposite directions increased the vertical displacement of the images; and it was a physical impossibility for the patient to wear glasses which corrected in part or in whole the refraction errors of both eyes; and it showed a lack of good common sense to prescribe such glasses.

It was Huxley, I believe, who once said, "Science is nothing but trained and organized common sense." This definition, I think, applies with particular force to a practical science like ours. A good dose of common sense should always guide us in our work; it will save us from becoming dogmatic and one-sided; it will make us treat our patients not as mere scientific problems, but as human beings anxious to be relieved of their troubles; it will make us cast theories to the winds and consider only real conditions; and among other things it will sometimes, perhaps many times, guard against the misuse of glasses.

THE ETIOLOGY OF TYPHOID FEVER.[1]

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THE consideration of the etiology of typhoid fever is so inseparably connected with the history of the disease itself that the presentation of the former imperatively demands a résumé of the latter. Of course, if we deal with the specific factor alone, the Eberth-Gaffky bacillus, a few words will suffice to describe it and its biological relations, but it seems necessary to a broader understanding of the disease to study the environmental influences which serve as predisponents, also the elements which lead ultimately to the recognition of its bacterial origin.

A disease which we now know as typhoid fever can be recognized in the writings of many observers even as remote as Hippocrates. It is not until the seventeenth century, however, that we have any autopsy records. They serve conclusively to prove the preceding statement. Spigelius, in the early part of the seventeenth century, described a fever characterized clinically by diarrhea, often bloody stools, delirium or hebetude, abdominal pain, absence of crises and occasional relapse, accompanied by inflammation, and sometimes by sloughing foci and gangrene of the small bowel. In the middle of the same century Willis described the bowel lesion as an internal eruption of variola. He evidently met with a case or cases in which the solitary follicles were specially involved, the so-called "forme pustuleuse" of Cruveilhier. He also called attention to what he regarded as two types of the fever, one, the febris pestilens, contagious as its name implies; the second, less contagious, having a longer course and terminating more slowly.

[1] Read before the Northern Medical Society, March 18, 1902.

Sydenham in addition noted the tendency to diarrhea and epistaxis and Hoffman of Halle described the eruption. Morgagni, in the eighteenth century, noted that perforation of the bowel might occur and directed attention to the involvement of the spleen and mesenteric glands. Thus far, however, considerable confusion existed in the classification of fevers. No one had associated the bowel lesion with any particular type, nor were the contagious and non-contagious fevers considered independently, though we have seen this latter foreshadowed, notably by Willis.

It was in France in 1804 that Prost first proved that one of the fevers was regularly accompanied by a bowel infection, though the dominant teaching of Broussais at that time, that all fevers had as their chief feature a gastro-enteritis, prevented the general acceptation of that finding. In 1813, however, Petit and Serres pointed out that certain cases, recognizable clinically, were accompanied by involvement of the lower part of the small bowel. They regarded the disease as a specific one, probably due to some special poison. It was named by them "enteromesenteric fever."

In 1823 Bretonneau observed that in these cases it was the lymph elements of the bowels that were involved rather than the mucous membrane, and he proposed the name dothiénentérite. Up to this time the disease had been included in the designation "typhus fever," a very ancient term, comprising all fevers in which more or less clouding of the cerebral functions was a predominant feature; but occasionally, from the time of Willis, various observers had noted marked differences in the contagiousness of the fevers, though it was not until 1836 that Gerhard and Pennock succeeded in separating typhoid fever from typhus fever. I believe that we are indebted to the French for the name "typhoid fever." Gerhard had spent some time in Paris under Louis, where he had had the opportunity of studying typhoid. On his return to Philadelphia he witnessed an epidemic of typhus fever. This led to the paper on the difference between typhus and dothienteritis (or typhoid), though many years elapsed before its general acceptance. Indeed, as late as 1870 we find in many textbooks of that time an inclination to regard the two conditions as varieties of a single disease, and no very settled notion existed as to the degree of contagiousness of typhoid in particular, though it was noted that typhus was prone to occur in cities, on shipboard, in institutions, or, in short, wherever opportunity for close communion existed, while typhoid was more frequent in villages and country places, a fact soon ascribed to the circumstance that in cities a better drainage system prevailed.

Prior to the discovery of the typhoid bacillus all sorts of conditions were alleged to cause the disease, cold, filth, decomposition, foul air, seasonal changes and mental and physical strain. Murchison, in his book on the continued fevers of Great Britain, attempts to prove that enteric fever is due to sewer emanations. He further thought the disease to be due to decomposition of fecal matter, and believed that it took origin therein, outside the body and independent of any individual. This he termed the "pythogenic theory." Buhl and Pettenkofer propounded the "ground-water theory," by which it was supposed that some poison, the exact nature of which was unknown, underwent a sort of ripening process in the subsoil air, and that when the ground water was low, opportunity existed for this ripening and for the escape of the poison into the air, whence it was supposed to be inhaled, or that it contaminated food and drink. Hence, when the ground water was low, typhoid was supposed to be prevalent and *vice versa*. This theory held sway for many years but finally succumbed, for as was abundantly proved, neither scavengers nor workers in sewers were any more liable to the disease than were other laborers, proving that something more than foul air was responsible for the origin of the malady. It was in 1871 that Recklinghausen first called attention to the presence of micro-organisms in the organs of individuals who had died of typhoid fever. Eberth, however, in 1880, was the first to prove that a bacillus stood in a direct etiological relation with the disease, and later Gaffky succeeded in growing it in pure culture, studied it experimentally in animals, and succeeded in definitely establishing its pathogenicity. From that time to the present there have been very few dissenters.

Roux claimed to have established the identity of the typhoid and colon bacilli, but that has long since been exploded, although it still must be admitted that in mixed cultures, at least, their separation is not always simple.

The typhoid bacillus is a slender, rod-shaped, motile organism, provided with numerous flagella by which it is enabled to maintain its motility. It has no spores. It grows well on a variety of media at room temperature, but most rapidly at body temperature (37° C.). It is occasionally found in water, milk, butter, oysters, vegetables, fruits, or in soil, but as far as we know at present only when these have been contaminated directly or indirectly by typhoid dejections. It can more often be traced by its effects than by the actual finding of the germ, however. If we need any confirmation to-day of the fact that sewage contamination alone is unable to beget typhoid fever, it is abundantly furnished by the experience of Curschmann, who cites an epidemic occurring in Berlin in the early seventies, before the present water system had been introduced. About a thousand people living in a crowded manner drew their household water from a common well known to be contaminated with sewage, without the development of a single case of typhoid, until one was brought into their midst. Shortly after, numerous members of the community served by this well fell victims. The celebrated epidemic occurring in Plymouth, Pa., in 1885, in which 1,200 cases of typhoid fever developed within a short time, offers further proof. During the

early part of the year a man had had typhoid fever. He resided in a cottage near a stream which supplied a certain part of the town with water. His evacuations were thrown on the frozen ground; in the spring a thaw and heavy rain doubtless washed much of the material directly into the water and shortly after the epidemic began. These and many other instances only serve to show that the all-important factor is the bacillus, and that whatever is contaminated by it may serve to induce the disease.

We must consider, then, the means by which this is effected, *i.e.*, the agents concerned in carrying and spreading the infection. Of those previously mentioned, water is the most important. The manner in which the contaminated water is introduced into the individual is so varied as to defy a detailed description. Not only directly, as drinking or wash water, or when added to wine, whisky or other beverages; but indirectly, as in cleaning milk-pails, vegetables, fruits, etc. Fortunately, many conditions contribute to make the water a none-too-favorable medium for the bacillus—for instance, direct sunlight, various water bacteria and the presence of putrefactive organisms in great numbers. Running water, too, is less favorable than still water. The contamination of the water may result directly from the discharges of a typhoid patient or through sewage contamination, or as a result of washing clothing or other infected material in it. We have already seen the baneful influence of contaminated water. Just one more illustration.

Prior to 1893 the city of Hamburg drew its water-supply directly from the Elbe. From 1884 to 1893 there was an average of 2,580 typhoid cases per annum, *i.e.*, a morbidity of 5.4 per thousand inhabitants. Of these, the annual death-rate averaged 213, equal to .41 per thousand. In 1887, the worst year of all, there were 6,543 cases, a morbidity of 13.26 per thousand inhabitants, of whom 446 died, a rate of .90 per thousand. In 1893 the water intake was removed considerably up stream and a good filtration plant was installed. At once we see a remarkable change. In 1894 and 1895, there were 462 and 597 cases respectively, with a mortality of but .06 and .09 per thousand, and of these about one-tenth developed on ships in the harbor, presumably obtaining their wash water at least from the river.

Flügge states that typhoid bacilli usually disappear from water in about two weeks, but under favorable conditions they may persist much longer. Observations in this respect differ widely, but it is generally conceded that though they may maintain their vitality for some time, they multiply with difficulty, if at all.

Milk becomes infectious only when contaminated by infected water, by dirty vessels, or by hands of some one engaged in handling it. Both fresh and sterilized milk afford an admirable culture medium for the typhoid bacillus, and, as it causes no change perceptible to the unaided observer, it is at times a very dangerous medium, as numerous widespread epidemics testify. Heim found that the typhoid bacillus is capable of living in milk for about thirty-five days, in butter twenty-one days and in cheese three days. Tea and coffee do not exercise any deleterious influence on the bacillus; hence, when mixed with unboiled, contaminated water, they may serve as carriers of infection. So, too, according to Pick, with spirituous beverages and beer, in proportion to their alcoholic percentage. The stronger wines and liquors, of course, have a restraining influence. Even carbonated waters are not beyond suspicion if made from contaminated water. Hochstetter found the bacilli still living in them after some weeks.

Fruits, salads, celery and certain vegetables, if eaten raw may prove infectious either as a result of washing with infected water, or in consequence of direct infection from fecal contaminated soil used to foster their growth. Oysters have caused epidemics, their infection being traced to sewage.

It is questionable whether the air serves as a source of contagion, and if so whether the rare cases of pneumotyphus result from inspiring such air. It is conceivable, of course, that infection in consequence of contaminated air might occur through the mouth or the nose, but in such cases in all probability the poison would most likely be swallowed and give origin to the disease in the ordinary way by the alimentary tract. The typhoid organism, while not a hardy germ, is capable of maintaining its vitality under only moderately favorable conditions even for some months, as we have seen, though it does not necessarily multiply. One of the factors which works for its destruction is direct sunlight, which kills in a few hours. It is much more susceptible to warmth than to cold. Prudden kept some bacilli in ice at a temperature of—11° C. for three months without harming them, while a temperature of 135° F. for ten to fifteen minutes will kill them. They stand drying very well, maintaining their vitality several months. In the stools and urine their life depends chiefly on the reaction. In ammoniacal decomposition or in acid urine they do not live long.

The bacillus escapes from the patient chiefly in the stools or urine, particularly when the latter is albuminous. It is only occasionally found in the blood of typhoid patients, though always present, but as a source of infection that fluid need not be considered. It has been found, too, in the sweat, but there can be no doubt that previous soiling of the skin with discharges from the bowel had taken place. In by far the greater number of cases infection arises through fecal or urinary contamination. After an attack of typhoid fever, as long as several years in some cases, an abscess or periostitis or osteomyelitis may develop, from which it is possible to obtain the typhoid bacillus; such cases, however, are not likely to prove sources of contagion.

Having considered the specific factor, the bacillus, its source and mode of transmission, in-

cluding some of the agents that work either for or against it, it only remains to note some of the predisposing causes of the disease. First, as to age and sex. Children and young adults are specially susceptible; the majority of cases occur between the fifteenth and the thirty-fifth years. At all ages males seem a little more prone to develop the disease than do females, partly because of their greater opportunities for exposure and partly because women are much less susceptible during pregnancy, the puerperium or lactation. Nursing children are practically immune. Infection of the fetus may occur. I was able on one occasion to obtain the typhoid bacillus from the spleen of a five-months fetus whose blood gave the Widal reaction. There was no intestinal lesion.

As to the social status, all walks of life are equally liable—high, low, rich and poor. Young well-nourished people seem especially susceptible. Mental and bodily strain predispose to it. Of course, if the disease be contracted, the previous health and surroundings of the individual have a great influence in the production of other cases and on the type of the disease in the affected person. As a rule, nosocomial outbreaks are an index of faulty technic in the management of hospital cases or of cases treated at home, as the case may be.

As to season, it has long been known that it chiefly occurs in the late summer and in the fall. Bartlett, in his work on fevers, says it was always spoken of in New England as the autumnal or fall fever. Before the nature of the disease was well understood and when less opportunity for ascertaining and overcoming the source of the infection therefore existed, it ran practically unchecked during certain seasons of the year. Statistics of the London Fever Hospital for a period of eighteen years just antedating the '70s show twice as many cases during the six months of fall and winter than during the spring and summer period. It is least prevalent in spring, has its maximum in September, October and November, and its minimum in May. Hot, dry summers are apt to be followed by more severe outbreaks in the fall than when a normal rainfall has preceded. Geographical factors do not enter into consideration, for the disease is universal. It occurs in all the zones and on mountains as well as in valleys. An outbreak has been reported as occurring on Mt. St. Bernard.

Insanitary conditions serve as predisponents only in so far as they offer a nidus for the growth and multiplication of the germ. The inhalation of sewer gas was thought to be capable of directly inducing disease, but Miguel, Haldane and others claim that sewer gas is free from germs of all kinds.

The previous existence of digestive disorders may invite an attack of typhoid fever, especially, it would seem, theoretically at least, if a deficiency of HCl exists; though Kitasato has shown that the typhoid bacillus has a fairly-marked power of resistance against acids. Seitz showed that it could live for three days in a mixture containing .03 per cent. of HCl. Strauss and Wurtz in a .09-per-cent. mixture of HCl for two to three hours.

Among the conditions which serve to bring about a certain degree of immunity is a previous attack of the disease; one attack confers more or less immunity, but not nearly to the same degree as do the other exanthemata. Among 1888 patients in the Hamburg epidemic of 1887, Curschmann saw fifty-four have a second attack, a percentage of 2.4. One patient had a third attack. Another peculiarity is that recurrent attacks are apt to be more severe than the primary one. This is often true of the relapses of an initial attack. Natural immunity exists to some extent among some of the Oriental races, notably the Arabs; and people more or less constantly exposed to the poison acquire immunity. It is manifestly difficult to determine whether or not an inborn immunity exists among our own people.

During the febrile stage of acute infectious diseases the patient is for the time being insusceptible to typhoid fever, though the resistance is lessened directly as the norm approaches. Certain chronic affections are said to offer some antagonism to typhoid fever, *viz.*, chronic tuberculosis, diabetes and malignant tumors. On the other hand, should typhoid fever attack an individual already tuberculous, but still in good condition, the phthisis is apt to advance rapidly.

In conclusion, then, let me repeat that the all-important factor is the bacillus, which for some unknown reason manifests a peculiar tendency to appear among us at regular intervals; that anything which affords an opportunity for its entrance into an individual predisposes to an attack of the fever; and that every case may serve as a source of infection to others, but unlike the other exanthemata, only by the use of contaminated food or drink, or water used for various household needs. Traube reported one case only of direct infection, differing from the above, which occurred in a hospital patient, into whose rectum a thermometer had been placed just after it had been used on a patient ill with typhoid fever.

912 North Fourth Street.

MEDICAL PROGRESS.

MEDICINE.

Trichocephalus Infection.—The presence of this parasite in man has often been considered as harmless. Becker (Deut. med. Woch., June 26, 1902) believes, however, that it may be the cause of severe and dangerous anemias. He has lately observed two cases marked by extreme reduction in the number of red cells, the specific gravity, and the hemoglobin-content, and morphological changes in the red corpuscles, micro-, macro-, and poikilocytes. Treatment directed against the anemia by iron and arsenic failed until a diagnosis of trichocephalus had been made. Enemas of benzine (five gtt. to the liter) seemed to rid the colon effectually of the worms. The author classifies the symptoms of the infection in three groups: (1) Gastro-

intestinal. Colitis with ulceration, obstinate diarrhea, bloody stools, symptoms of peritonitis with vomiting and pain; (2) Nervous: Headaches, vertigo, aphonia, signs of meningitis, often fatal; (3) Circulatory: Anemia and its consequences, headaches, vertigo, palpitation, fatigue.

Typhoid Bacilli in the Urine.—That the Eberth bacillus may be found in the urine a long time after convalescence is established, is well illustrated by a case reported by BUSING (Deut. med. Woch., June 19, 1902). The patient, a soldier, contracted typhoid in Tientsin, and on his return to Europe four months later the bacilli could still be constantly demonstrated in the urine, although he was apparently perfectly well. The danger from this source of infection and the necessity of constant urinary examinations during convalescence, is self-evident. The author has found that the bacillus readily disappears with daily administration of urotropin in full doses.

Coma Due to Acid Intoxication.—Deep coma has been observed in certain cases which were free from diabetes or other primary disease. It is now recognized that this form of intoxication is due to an excess of acids, the result of the decomposition of fats of either the food or tissues. These cases are rare and one which is unique in its clinical features is reported by D. L. EDSALL (Phil. Med. Journ., June 28, 1902). The main features were as follows: A man, in fairly good health was suddenly overcome by vertigo followed by prolonged coma, lasting ten hours. Alkaline transfusions were given. He exhibited the symptoms and urinary signs of acid intoxication. He recovered rapidly and remained well. The signs of diabetes were absent at all times. The previous history only revealed comparatively slight gastro-intestinal disturbances. The author has found no records of a case in which the signs of intoxication appeared so rapidly and were of such great severity and in which there was an absence of prolonged gastro-intestinal disturbance. Recovery taking place within a few hours is also remarkable, without subsequent symptoms. Treatment consisted of blood-letting (fourteen oz.) and intravenous infusion of a 3 per cent. solution of sodium bicarbonate, about five pints, at intervals. Attention is called to the necessity of a proper recognition of this condition and the value of this treatment in non-diabetic acid intoxication.

Antistreptococcus Serum in Rheumatism.—In reporting a case of acute articular rheumatism with pyemic temperature treated with this serum, R. J. CHIPMAN (Phil. Med. Journ., June 28, 1902) states that he has found no other record of its use. The patient presented characteristic symptoms with successive involvement of the wrists, ankles, knees and small joints. In addition there were almost daily chills with excessive rise of temperature with marked prostration and apparently profound septicemia. Successive injections of serum were given, 10 cc. daily, with remission of symptoms on the first day and rapid subsequent improvement. The usual anti-rheumatic measures had not met with any response and a lethal ending seemed imminent.

Suspension and Corsets in Chronic Meningomyelitis.—The remarkable results of suspension as a part of the treatment of tabes dorsalis have suggested to PERSONALI of Geneva (La sem méd., 1902, No. 24) the propriety of applying the same technic in treating chronic meningomyelitis with the adjunct of plaster jackets, which have recently been so highly praised as therapeutic measures against locomotor ataxia and traumatic neurasthenia of spinal type. The author expects suspension to rupture all adhesions between the meninges and their adnexa and to reestablish a sufficient blood-flow on the one hand, and on the other hand, the immobilization in the jacket to maintain the conditions of maximum extension and of favorable circulation and thus to insure all the good effects of the suspension. He begins with daily séances of suspension, the first of which lasts only one minute; the subsequent ones increase in duration until after four or five days they are four or five minutes long each. They then remain constant at this limit for the succeeding ten or twelve days. During the suspension, while the body is supposedly in complete extension, the plaster jacket is applied after Sayre's method, extending from the highest possible point of the axillas to the iliac crests. The first corset remains in place for three months, during which the subject must be kept in repose upon a bed altogether, or at least until the plaster has fully hardened. Defecation and other organic functions are carried out in this attitude. At the end of the third month the patient as a rule is for the first time allowed to sit up and then to walk. Then the first jacket is taken off, and after other suspensions the second is applied in the same manner and of the same kind as the first, but the patient is not obliged to remain in the horizontal position any longer. This stays in place for two months more and is then replaced by a simple system of linen bandages carefully applied, which continue in use for two months longer. The treatment is then considered complete. In addition to this mechanical method, chiefly protective in its results, it is necessary to remove possible causes of the disease such as alcoholic excesses and to prescribe active tonic measures. Of these he recommends most highly subcutaneous injections of cocadylate of soda. During the past ten years the author has treated sixteen cases in this manner, among which he obtained eight complete cures, at least from a clinical standpoint; four material improvements and four doubtful results because these patients did not complete the course of treatment. Of these two subsequently reappeared as failures. It is necessary to state that this method is useless against syphilitic manifestations. The earlier in the course of the other forms of the disease the treatment is inaugurated the better will be the results.

Tuberculous Pleuritis.—The importance of all forms of tuberculous inflammation renders each case as it appears in day-to-day practice of moment peculiarly to the patient himself and broadly to the community at large. Contributions to the more exact clinical understanding of any special manifestation are consequently of specially commanding interest and particularly when the form in question may be localized, the covering of an organ alone, like the pleura. If treatment can keep it so circumscribed, the advantages to the patient are evident. With these broad principles in view, L. BARD (La sem. méd., 1902, No. 24) discusses tuberculous pleurisy, first from the pathological and second from the clinical standpoint. As a classification according to pathology alone he recognizes three grand groups of cases: (1) Purely localized tuberculosis of the pleura; (2) Tuberculosis of the pleura proceeding from the immediate neighborhood, especially from the lungs, so that the pleural process is secondary and subordinate; (3) Tuberculosis of the pleura in association. Here the serosa of the lungs is affected entirely as a part of a generalized inflammation of many foci, concomitant or successive, conjugated or independent. More important practically are his varieties from the clinical point of view, which are based in a general way upon the foregoing classes, but more minutely distinguished. Under purely local forms he mentions acute localized tuberculosis of the pleura of superficial site, where the lesions, although essentially intrapleural, are truly in the false membranes themselves,

or just within, or at the level of the endothelial layer. The symptoms are frank progress, cyclic evolution, freedom of the lung from involvement, absence of expectoration, signs of fluid especially about the apex, and other signs which fluid about the apex gives (*syndrome sus-liquidien*, of Pitres). Very important is the proof which after aspiration of the fluid the needle gives of normal mobility of the lung. His next clinical variety is acute, localized tuberculous pleurisy of deep site, in which the nodules are in the deepest layers of the pleura, in the subserous connective tissue, even upon the surface of the lung-cortex and into the intervals between its lobes and lobules. It presents, compared with the foregoing variety, less frank onset, more scanty fluid, irregular evolution, and various signs pointing more or less toward involvement of the lung in the process. The apices may escape or show signs of congestion; the process extends in the cortical layers with little tendency at this period of the disease to penetrate. The lung resists the compression a little, the upper layer of the effusion becomes the higher in level and more important, whence proceed variations in the stethoscopic signs: Souffle very near and clear, voice fremitus and sounds less abolished, broncho-egophony rather than pure egophony, and at times a few scattering fine râles. Aspiration shows less expansion of the lung. In a later stage, resolution is less complete, adhesions more solid and extensive, retraction of the parietes present and at the base evidence of a persistent lesion tending toward sclerosis interstitialis, and a pleuropneumonia more or less marked. If the process continue there appear at the final stage evidences of pulmonary tuberculosis of pleural origin—so-called postpleuritic. Under the class of tuberculosis of the pleura proceeding from the neighborhood, he mentions for completeness symptomatic pleurisy from the thoracic wall and peritoneum, and there discusses that from chronic pulmonary tuberculosis, which is rarely acute and presents no clinical difficulties. Symptomatic pleurisy of the onset of pulmonary tuberculosis is vastly a different clinical entity. Its chief feature is self-evident involvement of the lung at the first appearance of symptoms, or soon after it, and then steady progress therein, although the pleurisy may have subsided. It is needless to state that its early recognition is very important. His next group is really transitional to the third grand subdivision and comprises symptomatic pleurisy of an exacerbation of pulmonary tuberculosis. The final clinical group is of those cases where diagnosis is easy and where treatment gives exceptionally any result whatever. It comprises pleurisies in association with other manifest tuberculous foci, namely, with the pleuro-pulmonary, with generalized granulations and with wide-spread tuberculous inflammation of the other serous membranes. Each of these speaks for itself so frankly as to need only mention here. The treatment of these pleurisies is *par excellence* aspiration.

Diplococcal Bronchitis.—It has been usual to consider acute bronchitis as an inflammatory or vaso-motor phenomenon due to irritation or reflexly after exposure. P. W. WILLIAMS (Bristol Med. Chir. Journ., June, 1902) has observed many instances of localized bronchitis in which the sputum is crowded with diplococcus pneumoniæ and suggests that these micro-organisms are the essential causal factor in a large proportion of such cases. He finds that it tends to affect localized areas in one or more pulmonary lobes and usually runs a benign course. There is also a tendency to recurrent attacks to implicate the same area again and again.

The Anemic Type of Cancer of the Stomach.—Cases of gastric cancer are described in which there are no physical signs or any symptoms of gastric trouble, but where the marked cachexia is taken to be pernicious anemia. The anemia is not due to loss of blood, for there are no hemorrhages; nor is it due to inanition, for the digestive functions are fairly good. But the cachexia and malnutrition are generally rapid in their progress. The blood of such a case studied by P. MENETRIER and CH. AUBERTIN (Archives Générales de Médecine, June, 1902) showed 1,476,000 red cells and 9,300 leucocytes, and of the latter there were 49.44 per cent. of polynuclears, 42.22 mononuclears, and 8.33 lymphocytes. There were no nucleated red cells. The gastric juice after a test meal showed complete absence of hydrochloric acid, though all ordinary foods, even meat, had been well-borne. At no time were there any gastric symptoms, nor were the authors able to detect any dilatation of the stomach, any abdominal tumor or gland enlargement. One month after admission there was a single small coffee-ground vomit, and two weeks later death ensued. The postmortem showed an astonishing paleness of all the organs, even the heart, while the voluntary muscles retained their normal redness. A large ulcerated cancer surrounded the pylorus without occluding it. Careful histological examination showed almost complete destruction of the gastric glands, an interesting fact since the digestive functions were so well preserved. The pancreas was, however, hypertrophied, firm and red, and had probably assumed the gastric function of albuminoid digestion. The bone-marrow was in active proliferation, showing 63 per cent. of granular myelocytes, 21 polynuclear neutrophiles, 0.66 eosinophiles, 0.78 lymphocytes and many transition forms. There seemed to have been an attempt on the part of the hematopoietic organs to overcome the globule destruction which produced the anemia. Many of the cells of the tumor seemed to have a certain secretory activity, as shown by their containing droplets of clear liquid or vesicles large enough to push the nucleus to the periphery. The authors think that absorption of this abnormal secretion is what caused the anemia.

Transmission of a Pericardial Friction-sound.—One of the important diagnostic features of a pericardial friction sound is its localization, as, unlike an endocardial murmur, it is not transmitted by the blood-current. However, it has occasionally been noted that such sounds are heard over a considerable area, and E. DEVIC and J. DE TEYSSIER (Archives générales de Médecine, June 1902) report such a case in a nephritic. A rough,whining sound heard most loudly at the apex, extended to the right border of the sternum and to the base, and was audible in the axilla and posteriorly on the left side. Autopsy showed an abundant fibrinous pericardial exudate, with a greatly hypertrophied but not dilated heart. Eleven other cases have been found in the literature, in each of which the heart was greatly hypertrophied. It is not the loudness of the murmur that enables it to be heard, but its transmission through a sound-conducting medium; and in this case the conductor was probably the bony framework closely pressed by the hypertrophied heart.

Occurrence of Typhoid Bacilli in Urine.—The discovery of the typhoid bacillus has been of the greatest importance from a scientific and prophylactic point of view, yet for the early diagnosis little help has been offered. The Widal reaction, the bacteriological examination of the blood, the stools, and the roseola spots have been of great value in a large number of cases; yet it is particularly in typhoid that an early diagnosis is desired and for this these methods rarely help. J. JACOBI (Deutsch. Arch. f. klin. Med. Vol. 72, Nos. 5 and 6.) examined the urine of thirty-five patients for typhoid bacilli in the following manner:

In male patients the meatus was cleansed with sublimate and then surrounded with sterile cotton; the patient was then told to urinate into a sterile vessel and only in case of deep coma was a catheter employed. In females, on the contrary, the urine was always drawn off. After adding bouillon or gelatin, the mixture was placed in a thermostat and examined after 24 hours for typhoid bacilli by means of the usual methods, including the agglutination test. In the thirty-five cases the examination proved positive in 20 per cent., which is somewhat lower than that of previous records in which probably the colon bacillus was occasionally mistaken for the typhoid. Albumin was found to be present in most of the positive cases, which seems to show that the bacilli are excreted only if the kidneys are diseased, to some extent at least. In those rare cases where this is not so, it is possible that the bacilli form an embolus of the small vessels leading to a necrotic area into which they eventually migrate, and this may also explain bacteriuria developing during convalescence, with or without albuminuria. Generally no new subjective symptoms are added when bacteria appear in the urine unless a cystitis develops. Then there is a clouding objectively which differs from that caused by other insoluble matter by the peculiar shimmer obtained when a narrow cylinder of the urine is held up to the light. The earliest day of appearance was the eighth and the latest the twenty-second day of the disease, and generally a roseola was already present, no doubt since for both conditions the presence of bacilli in the blood is necessary. In most of the positive cases there was an abundant eruption, high temperature and generally more severe symptoms, and the Widal reaction was positive in all; nevertheless none were fatal. From a prognostic point of view bacteriuria seems to be of as little value for the early diagnosis of typhoid as the other measures. For but little reliance can be laid upon a test which is positive only in so small a percentage of cases and then only at a late date; but undoubtedly it may serve as a ready means for distinguishing certain cases of true typhoid from exanthematic typhoid. But from a prophylactic standpoint the lesson is so much more valuable, since few realize fully that the urine requires as careful a disinfection as does the fecal matter. The case of a nurse is mentioned who accidentally swallowed some typhoid urine and contracted the disease; there are similiar ones on record. There is no question that the excreted bacilli possess their full virulence, for they are actively motile and serve admirably for the agglutination test. Urotropin seems to act admirably as an internal disinfectant, but unfortunately there follows a renewed appearance of the germs if its administration is stopped.

Influence of Carcinoma on Gastric Digestion.—In many cases of gastric cancer there is an absence of hydrochloric acid in the stomach contents, but why this is so has long been a mooted question. The following points have to be considered according to C. P. EMERSON (Deutsch. Arch. f. klin. Med., Vol. 72, Nos. 5 and 6). (1) Food may bind the acids. It is improbable that fats or carbohydrates possess this power, but for albumins it has undoubtedly been proven that a neutralization can take place and the albumoses and peptones which form during digestion are also active in this respect. Finally, the ash of most food is alkaline in reaction. (2) Substances may be secretes from the stomach which bind the acids. This seems likely, for if hydrochloric acid be introduced into a carcinomatous stomach known to be empty, the reaction will no longer be acid after a certain time. (3) Substances secreted from the neoplasm may be responsible for this. To decide this, the author studied the effect of carcinomatous tissue upon the acid in the process of artificial digestion. In comparing with a control experiment it was found that the acid disappeared more rapidly where a piece of tumor was present. If the tumor was heated to 80 or 100° F., before being added, less acid was neutralized, so that by heating probably a ferment was destroyed to which the peculiar action is due. Further experiments were then conducted to determine if in the carcinomatous stomach more bases form at the end of digestion to which the neutralization might also in part be due. And indeed it was found that digestion went much further here since more nitrogen was found belonging to products beyond the albumose stage. The final conclusions reached on the influence of carcinoma on gastric digestion are that in carcinomatous tissue there is present a ferment which can, in the incubator as well as in the human stomach, digest albumin and convert it into products simpler than albumoses. This ferment is also active in the presence of hydrochloric acid.

Phosphaturia.—In their study of that peculiar condition known as phosphaturia, F. SOETBEER and H. KRIEGER (Deutsch. Arch. f. klin. Med., Vol. 72, Nos. 5 and 6) found that the most turbid urine was generally voided between six and eleven in the morning, after the longest pause in feeding. The relation of phosphoric acid to lime, which normally is as 12:1 here was found to be from 1-2:1; in other words there was a marked increase of lime salts excreted. If the feeding was kept up during the night and so more phosphoric acid allowed to enter the system, the urine improved considerably, but the general condition of the patient became worse. The explanation probably is that in phosphaturia there is a saturation of the tissues with lime which cannot well be excreted when the kidneys are eliminating an undue amount of phosphoric acid.

Results of Infantile Syphilis.—The subsequent health of fifty-six cases of infantile syphilis, of which 13 were acquired and 43 inherited, was investigated in a statistical article by A. MARTIN (Münch. med. Woch., June 24, 1902). Taking the acquired cases first, it was found that two had died of pneumonia and diphtheria respectively; the remainder seemed to have had a normal bodily development and only one developed tertiary symptoms in the form of a gumma of the soft palate. Nervous diseases particularly did not occur. The male patients all were married and their children healthy, while most of the females had not borne any children; in those that had, the offspring was not morally or intellectually defective. The cases of hereditary lues were divided into early and late; of ten belonging to the former class, eight had died in early infancy of atelectasis of the lungs, pneumonia, lues and other diseases; one grew up to be a moral imbecile, and another is healthy, with two living children. Of nineteen cases belonging to the tardy class, five had died of various diseases and three had had severe syphilitic lesions. Only one of the surviving group was troubled with grave tertiary symptoms involving the nasopharynx and the ears, and in the rest, no peculiar disposition to diseases of the nervous system or the vessels could be discovered, nor was the appearance of puberty and general bodily development at all delayed. The mortality among the offspring, however, was slightly higher than normal.

Melanotic Carcinoma in an Infant.—With the rare occurrence of carcinoma in young infants, the case reported by G. REIMANN (Prog. med. Woch., June 19, 1902), does not lack in interest. The child was born of a luetic mother, and at birth had many stigmata of inherited syphilis. During the first months of its life a number of small, bluish nodules developed in many

different parts of the body, which were first looked upon as gummatous. When, however, an energetic treatment with mercurial inunctions did not improve the condition, the diagnosis was changed to telangiectatic fibroids. Six months after birth the skin became brownish and a severe diarrhea with fatal issue set in. The autopsy revealed a general carcinomatosis, with the primary tumors in the suprarenal. The microscopical examination showed the growths to be melanotic in nature.

Latent Brain Abscess Becoming Evident with Symptoms of Atropine Poisoning.—A laborer, five years before death, received an injury on the head which was followed by considerable shock from which he, however, soon recovered. After a long period of latency, E. AUFRECHT (Arch. f. klin. Med., vol. 72, Nos. 5 and 6) was called in to prescribe for a supposed bronchial asthma. After several doses of atropine, severe headache, twitchings, dilatation of the pupils and considerable confusion set in so that there was some doubt as to the diagnosis, especially since it seemed as if the prescription had been made ten times stronger than intended. The autopsy, however, revealed a large abscess in the left temporal region which had not caused any symptoms during the five years.

Embolism of Superior Mesenteric Artery.—An interesting case of embolism of the superior mesenteric artery which ended in a reestablishment of the circulation, is reported by E. AUFRECHT (Arch. f. klin. Med., Vol. 72, Nos. 5 and 6). In a girl eight years old, suffering from an uncompensated mitrol insufficiency there suddenly developed hematemesis and severe pain in the liver region where soon an indistinct resistance could be palpated. Later, the stools became mucoid and hemorrhagic. A cure of this complication is rare and was not so much due here to the therapeutic measure as probably to the incompleteness of the occlusion of the vessel.

A Measure for the Heart's Energy.—Marked circulatory disturbances, which become evident through dyspnea, edema, etc., clearly demonstrate that the heart is not doing its work properly. There are, however, many individuals suffering from anemia, neurasthenia and kindred diseases where the insufficiency does not manifest itself by such evident symptoms and where yet the heart is exhausted. As good criterion for the degree of this absence of reserve energy, G. GALLI (Münch. med. Woch., June 10-24, 1902) has found the splitting of the second pulmonic tone. In a number of apparently healthy persons examined this phenomenon was observed only in a few in the morning, but toward evening it could be detected in over one half. Children are generally more active and draw on their energy more freely, hence here the splitting can be heard more often than in those advanced in years. This fatigue symptom is most markedly seen in diseases of the heart muscle, in increased blood-pressure in the pulmonary vessel, in modified pulmonary traction and in nervous conditions and, according to its severity, three degrees may be distinguished. A frequent, concomitant sign is the pulsus paradoxus. The diagnostic and prognostic value of the splitting is evident, yet owing to its great delicacy, care must be exercised in correctly interpreting it and several examinations, preferably at different times of the day, are desirable. Where hypertrophy of the heart is easily detected it is not so important to search for the sign as in acute infectious diseases where there is not time for an increase of the size to develop and it is here where its great value is apparent to determine if the heart suffers unduly from the intoxication. It is then out of place to still further stimulate the weakened organ, and sedatives are more indicated with absolute rest and proper feeding. The proper auscultation during convalescence may obviate the occurrence of sudden cardiac failure so often noticed during this period.

PEDIATRICS.

Tetany and Myotonia in Infancy.—Belonging to the early period of infancy, according to C. HOCHSINGER (Rev. Mens des Maladies de l'Enfance, June, 1902), myotonia is a neurosis distinct from tetany and from the pseudo-tetanus of Escherich. The tetany of nurslings is to be regarded in the same way as that of adults. It is characterized by intermittent and tonic contractures, principally in the muscles of the hands and feet, accompanied by a hyperexcitability of the motor nerves and of the muscles. There is no loss of consciousness. The hyperexcitability is the essential condition of tetany. The most important symptom of this hyperexcitability, is the phenomenon of Chvostek, which is the sudden contraction obtained by striking branches of the facial nerve. This reaction is not obtained in myotonia. All the other symptoms of tetany must be subordinated to the hyperexcitability. In connection with tetany may also be mentioned Trousseau's symptom, which consists in the reproduction of the paroxysm at will by pressing on the affected part in the direction of its motor nerves or blood vessels. The so-called "phenomenon of the fist" in myotonia is the contraction of the fingers aroused by pressure on the nerves of the brachial plexus. This sign is seen only in infants of six to eight weeks of age. It is not dependent on a general hyperexcitability, but on the fact that in early infancy the inhibitory centers that preside over the reflexes are incompletely developed. True tetany of infants is a neuro-muscular affection, developed on a rachitic foundation exclusively. According to Kassowitz, the largest number of cases is found in the early spring months, which is also the case with rickets. Toward the end of summer tetany disappears completely. On the other hand, myotonia has nothing to do with rickets. Developed in the course of gastro-intestinal intoxication, it has no relation to any particular season, except in so far as it is related to the period of most serious intestinal disorders, toward the end of summer. The contractions of tetany are paroxysmal and intermittent, while those of myotonia are persistent, lasting sometimes for weeks at a time. In tetany the attacks come on suddenly; in myotonia, gradually. In the latter disease there is no mechanical or galvanic hyperexcitability of the muscles or nerves, and the facial symptom is not present. The laryngo-spasms, and the tonic and intermittent spasms of respiration, which frequently occur in tetany, are not found in myotonia. Tetany appears at a later period than myotonia, which is seen in the first few weeks of life. In tetany the contractions have a tendency to recurrence, while in myotonia this tendency is not present, the attack disappearing with the cause. The phosphorus treatment which has good results in the neuro-muscular affections of infancy, has no effect on the spasms of myotonia.

Milk Analysis in Infant Feeding.—All present methods of milk-modification assume that there is a fairly constant percentage of fat in a given number of ounces taken from the upper portion of a given quantity of cow's milk after the cream has risen. WENTWORTH (Boston Med. & Surg. Jour., July 3, 1902) has made a series of analyses which show that this assumption is not true for individual milk and that the percentage of fat in cow's milk varies very much. It was also noticed that the percentage of sugar was higher in the lower milk than in the cream and that the percentage of proteids was higher in the cream than in the

lower milk. An examination of twenty-six specimens of "modified milk" from well-known establishments showed that all modifications were incorrect. The most constant error was in the low percentage of fat. The proteids were usually too high and the percentage of sugar varied in each direction. These errors were appreciable and amounted to from 20 to 25 per cent. of the total quantity specified in the formula. An obvious conclusion to be drawn is that within certain limits accurate percentages of the constituents of modified milk are not essential in the large proportion of cases, as many infants apparently thrive on these modifications whether prepared at home or elsewhere. The author believes that accurate modifications are most essential, however, in the early weeks of life. He thinks that in each case the fat should occasionally be determined and no cream used in which it is less than 10 per cent., as in such cases the proteids are always too high.

Self-abuse in Infancy.—Self-abuse is one of the most commonly cited cases of the nervous diseases of childhood, especially of epilepsy and insanity, says JNO. T. WINTER (Amer. Jour. of Obstet. and Diseases of Women and Children, June, 1902). Precocious sexuality with masturbation must necessarily interfere with normal mental growth, and in such subjects we can look for loss of memory, delusional insanity, and hysterical instability. Often the habit is taught the child by the nurse in order that it may exhaust itself and go to sleep quietly. Many times the cause of the habit may be found in the condition of the parts themselves: sebaceous matter on the inside of the prepuce or hardened vernix in the vagina, inflammation of the kidneys, phimosis, seat-worms, and various other conditions causing local irritation and thus leading to manipulation of the parts. It is also thought that the practice may result from some form of brain disease or cerebral deficiency, as it is often found to exist in those suffering from some forms of insanity, and in idiocy. How shall the habit of self-pollution be corrected and prevented? Corporal punishment has no influence upon these children. Where there is no local cause, we can muffle the child's hands, or put them to bed in the spread eagle style. Not only the child, but its nurse also, should be watched. Circumcision should be done if there is an adherent prepuce. It has been suggested that the prepuce at the root of the glands may be pierced with an ordinary silver needle, the ends of which should be tied together, and thus make erection impossible.

The Venous Dystrophies of Hereditary Syphilis.—Certain cases of hereditary syphilis, according to E. FOURNIER (Rev. d'Hyg. et de Med. Infant., Vol. 1, No. 1), present venous dilatations in the form of large blue or violet-blue cords, on the head and in the region supplied by the tributaries of the external jugular vein. These venous dilatations have by certain authors been supposed to supply a sort of supplementary circulation outside of the skull, to aid the circulation of the brain rendered insufficient by hydrocephalus or tumor of the brain. Fournier believes that the latter causes are sometimes present, but in the majority of cases they are absent. An attempt has been made to explain these dilatations as the result of a malformation of the bone at the base of the skull; no anatomical observation, however, has yet confirmed this. Moreover, the varices diminish and finally disappear. Evidently they are to be attributed to a congenital feebleness of the walls of the veins. In infancy the greatest muscular development and output of energy are displayed in the case of the respiratory apparatus. The acts of sucking and of crying cause an arrest of the pulmonary circulation, with frequent stasis of blood. There is a reflex of blood into the large veins at the base of the heart. There are valves in the internal jugular and subclavian veins but none in the vena cava superior, while the external jugular is provided with insufficient valves. The absence and insufficiency of valves favor the reflex and stasis of blood in the latter veins and permit their distension during the frequently repeated acts of sucking and crying. Moreover this distension is more liable to occur in veins whose walls are congenitally feeble. With the growth of the child and the cessation of crying and sucking, the venous enlargements disappear. This is in marked contrast to the slow disappearance of venous enlargements in the adult.

OBSTETRICS AND GYNECOLOGY.

A Prophylactic Female Catheter.—A double catheter is the means by which it is sought to obviate the carrying of infection from the female urethra into the bladder by P. ROSENSTEIN (C'blatt f. Gynäk., 1902, No. 22). The outer catheter consists of a 3 c.m.-long cylindrical urethral segment with a blunt conical point centrally perforated and of a long distal tube (the conducting tube) attached to the former by a collar which forms a flange beyond the surface of the urethral section. The inner catheter is a straight metal instrument of diameter to fit the conducting tube uniformly yet easily and of length to project beyond the tip of the outer catheter about 2 c.m., which will in most women represent its penetration into the bladder and hence avoid as a rule contact with the walls of that viscus, which is an important point the author thinks in avoiding catheter cystitis. The perforation in the tip of the outer catheter is of such a diameter as to permit the inner instrument to pass through without contact with the urethral secretions which would naturally tend to collect about the orifice of the outer catheter. The collar on the outer instrument will prevent a penetration of more than 3 c.m., the average length of the female urethra. In women with longer canals the inner tube must traverse the excess of length between that of the outer shield and the internal sphincter. The danger of infection from this cause is very small because the proximal third of the female urethra has been shown to be almost pus-free. Before publishing his paper, the author tested and proved the practical value and the clinical fitness of the instrument in Winter's gynecological clinic and trusts that it will be found to be the means of reducing the number of cystites caused by catheterization.

Typical Fibroma of the Vulva.—The actually remarkable rarity of this form of vulvar neoplasm renders a brief review desirable of a case reported by W. THOMASS of Brandenburg (C'blatt f. Gynäk., 1902, No. 25). The seventeen-year-old nullipara, always in previous good health, began her menses two years previously and underwent them normally; noticed three months ago a small lump in the external genitals at first causing no inconvenience but later by growth demanded interference. Examination showed a tumor situated between the orifice of the urethra, the labium minus (still uninvaded) and the anterior wall of the vagina, of hen's-egg size, hard, oval, sessile, with two nodules projected to the front through a thick capsule easily differentiable from the surrounding soft parts. There was no vulvar or vaginal discharge. The mass was easily ablated with knife and scissors without damage to the urethra, which was separated from it by a very delicate lamella, and the cavity of its site closed with layer sutures. Histologically the growth was true fibroma. Literature is unfortunately not definite in its record of these tumors, but it is certain that typically they occur with extreme rarity. In his work on gynecology Veit cites twelve reports of them, but adds that

they must be accepted cautiously because tumors of the round ligaments, elephantiasis, syphilitic deposits and the like must all be fully differentiated in the diagnosis.

The Dangers of Heavy Vaginal Specula.—In order to insure a wide and continuous exposure of the walls of the vagina for gynecological procedures it is often the rule to use specula with weighted ends as retractors. F. GRIFFITH (La Sem. Méd., 1902, No. 24) has had occasion to see that this procedure is not always without dangers and disadvantages. He was called upon to do a curetting upon a twenty-five-year-old woman who had been the subject of a criminal abortion. He inserted a speculum weighing 760 grams and did the operation in perhaps a half-hour. All went well until perhaps the third day when a fetid discharge appeared and upon examination he found a sloughing mass on the posterior vaginal aspect whose outlines conformed exactly to those of the blade of the speculum. Peroxide of hydrogen treatment hastened a cure, which was complete in about three weeks. The accident is instructive, because it happened in a young, healthy patient, and might by having opened avenues of infection have led to fatal or permanently injurious results.

Primary Ovarian Gestation.—It is a curious coincidence that three of the four reported cases of primary ovarian pregnancy should have come from Leeds, England, says A. W. MAYO ROBSON (Journal of Obst. and Gynæc. of the Brit. Empire, July, 1902). The writer reports a case in which the pathologic findings show most conclusively that fecundations of the ovum took place within the ovary. Intraperitoneal hemorrhage was masked in three of the cases. It is not at all improbable that some of the blood cysts, or hematomas, not infrequently found in the ovaries, may be due to impregnation of an ovum within the ovary. In order to settle the question, it is important that all such cases when discovered should be carefully examined microscopically without delay in order to gain evidence of impregnation, although, in some cases, owing to the early death of the embryo, the subsequent changes will make identification difficult, and perhaps impossible.

THERAPEUTICS.

Atropine in Asthma.—The recent revival by Van Norden and Riegel of Trousseau's treatment of asthma with large and increasing doses of atropine furnished to G. CAMPANELLA (Gazz. degli Osped., June 22, 1902) the incentive for its trial hypodermatically in two asthmatic cases. The remedy, in the form of atropine sulphate, was administered once daily; .002 proving efficient in one case, and a milligram dose being necessary in the other. It is said to have successfully, and at once, cut short asthmatic paroxysm, and its daily use for six days overcame bronchial symptoms, and prevented recurrence of asthmatic crisis. Some general discomfort was experienced by the patients from the use of the drug, such as vertigo, tremor, etc., but in some way, these symptoms are believed to be modified by a largely vegetable diet.

Value of Sulphur Baths.—Upon what does the value of sulphur baths depend? is a question which has often been asked and answered, yet the solution is as difficult to-day as ever. KULLMANN (Centralbl. f. a. ges. Therap., July, 1902) emphasizes the value of sulphur in two conditions, viz., superficial diseases of the skin and the deeper chronic affection of the fasciæ, joints and muscles. Yet baths alone have an equally sedative action. Experience has nevertheless shown that syphilitics improve more rapidly if they take their inunctions at a watering place where sulphur baths abound than at home, or in localities where the water is indifferent or contains iodine; and this fact demands explanation. It seems as if the suspended sulphur or the sulphuretted hydrogen creates a tolerance in the skin for chemical or mechanical irritation which increases absorption and prevents the development of furunculosis. At all events it is a well-known fact that baths can be kept up much longer in sulphur than in other waters. Other theories, such as the effect of the absorbed sulphur, or the osmotic effect upon the skin, are hardly tenable. It has been urged from many sides that sulphur and mercury are really incompatible since leading to the formation of insoluble sulphide of mercury, but it has since then been shown, that if this were rubbed into the skin it could produce mercurialism as well as the usual ointment. Much less can be said in favor of sulphur waters taken internally, and it is likely that they act no differently than other indifferent waters.

THERAPEUTIC HINTS.

A Unique Prescription.

℞	Ferri Lacti	gr. xxxii
	Chinin Muriat.	gr. xvi
	Mangan Dioxide	gr. xxxii
	Dissolve in	
	Ac. Nit. Mur. Pur.	♏ xxxii
	adde	
	Liq. Sedans P. D. & Co.	℥ii ℥v ♏xx
	Liq. Hydrarg. Perchlor.	℥iv ♏xv
	Tr. Aloes	℥iii ♏vii
	F. Ext. Ergotæ	℥ii ♏xl
	Tr. Cantharidis	℥i ♏xxxvi
	F. Ext. Cascara Sag.	℥i ♏xlvi
	Liq. Arsenicalis	♏xxxiv
	F. Ext. Nux Vom.	♏xxvi
	F. Ext. Physostigmat.	♏xxi
	Tr. Podophylli	♏xviii
	F. Ext. Ipecac.	♏xi
	F. Ext. Belladonnæ.	♏viii
	Syrupus Simpl. q.s.	ℨviii

M. S. ℥i twelve times a day.

Hay Fever.—

℞	Acidi trichloracetici	1	(♏xv)
	Aquæ q.s. ad.	100	(℥iij ℥ij)

M. Sig: To be sniffed, injected or sprayed up the nostrils two or three times a day. Cures result in from two to eight days. —H. KRAUSE.

The Morphine Habit.—The three chief remedies advised by OSCAR JENNINGS are sodium bicarbonate, heart tonics, and hot-air baths. Bicycling is a useful adjunct. The management of the cases is very difficult, but Dr. Jennings is optimistic even in cases of long standing. —"The Cure of the Morphia Habit."

To Remove Pigmented Spots.—Wash the skin and apply little plaques of white precipitate plaster, leaving them on all night. During the day apply the following and let it dry on the skin:

℞	Amyli de Riz.		
	Bism. oxidi aa. gm.	2.0	(ʒss)
	Cretæ preparat	4.0	(ʒi)
	Aquæ rosæ	6.0	(ʒiss)
	Unguent	10.0	

If the spots are very rebellious, one may have recourse to Hebra's collodion containing 10 per cent. of corrosive sublimate.

—UNNA, in Le Progrès Médical, May 24, 1902.

Vulvar Pruritus.—

℞	Sodii hyposulph	3.0	(gr. xlv.)
	Adipis lanæ hydros.	30.0	(ʒi)

Rub over the parts frequently or apply a ten-per-cent. solution of the hyposulphite.

—H. GUILHOT, in Le Progrès Médical, May 24, 1902.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, AUGUST 16, 1902.

DECORTICATION OF ORGANS.

THE operative procedure recently introduced into surgery under the name of "decortication" has found already a variety of applications, and is destined, doubtless, to a far wider range of usefulness in the near future. Prof. James Israel has advocated its use in certain of the chronic diseases of the kidney—an opinion which has been heartily endorsed by some of the most experienced of American surgeons. In another form, indeed, though practically the same in scope and in intention, it forms the basis of Telma's, and of Morrison's operation for ascites.

All of these procedures are based upon the theory that destruction of the capsule of an organ, or injury to its surface, will result in the formation of fibroplastic adhesions to neighboring areas or surfaces, and that these adhesions, becoming vascularized, will come to constitute an important accessory channel of circulation for the organ involved. In this manner, disorder secondary to circulatory derangements in the kidney, liver, spleen, etc., may be alleviated, or perhaps removed.

Needless to say, the records of the surgeons, so far as they are now accessible upon this subject, are encouraging, not to say optimistic. Needless to say, also, the pendulum will surely swing back again in time, and criticism will not be lacking even from the surgeons themselves.

In the meanwhile, the *raison d'être* of the operation and its philosophy, are still largely matters of doubt and speculation. It is difficult to conceive that an organ of such size as the kidney, through which flows so large a proportion of the circulating blood, can be noticeably relieved by a few vascularized adhesions. It is somewhat easier, though still a strain on the imagination, to concede that the engorged veins of the great portal system may find outflow and drainage through the newly formed capillaries between parietal and visceral pleuræ. Doubtless these phenomena are possibilities, but they have not as yet been adequately demonstrated. A few autopsies, both upon successful and upon fatal cases, have been recorded, in which the information is vouchsafed that fresh adhesions had been formed, and that they showed evidence of vascularization. This, however, is very far from proving that therein lies the cause of the benefits which are claimed for the operation. Every pathologist is aware that old cases of cirrhosis frequently present far more complex and widespread adhesions of this kind than can ever result from their artificial stimulation, notwithstanding which the portal stasis and ascites stubbornly persist. Not only this, but all the natural channels of communication between the portal tributaries and those of the vena cava may undergo enormous hypertrophy and form huge bunches of varicosities, yet there is no visible change in the symptoms due to the obstruction in the liver. Thus it is that the question suggests itself whether there may not be some other factor, as yet undiscovered, in the favorable influence of the operations, just as the curative action of laparotomies in tuberculosis of the peritoneum is conceded, without being understood.

Recently, two French observers, Albarran and Bernard, have reported a series of experiments in decortication of the kidneys of a number of rabbits, and their results go far to discredit the theory of an accessory circulation. They found that the operation was quickly followed by regeneration of the fibrous capsule, which was evident as early as fifteen days afterwards. At the end of six months, the kidney was found to be enveloped in a newly formed capsule of very great density and firmness, which bound it to the neighboring body-wall. So far their results confirm those of the surgeons. The parenchyma of

the organ, however, they found to be almost intact, with only slight and superficial lesions and adhesions. It seemed to them that the circulation of the kidney could be but very slightly, if at all, affected by any set of changes similar to those which they had been able experimentally to induce.

VERTIGO AND ITS SIGNIFICANCE.

FEW symptoms may bear a more various meaning than vertigo. While this disorder is associated with some of the most serious conditions in medicine, it may be no more than a sign of passing disturbance of cerebral circulation. For this very reason it is apt to be undervalued in its diagnostic significance, and scarcely anything is more important than for the practitioner to have a proper appreciation of it distinctly fixed in mind. It has been the custom to assume that many cases of vertigo are due to gastric disturbance. So experienced a clinical observer as Trousseau is mainly responsible for this idea. He described in his clear-cut way a very definite set of symptoms, the principal features being vertigo and the constantly associated phenomenon—a feeling of impending evil—that were due, as he considered, to a pathological condition in the stomach. Stomach vertigo has as a consequence become a commonplace in medicine. Many vertiginous feelings that have in reality a much more serious significance, have been since set down as stomachic in origin. As a matter of fact, while gastric disturbance may cause a certain passing dizziness, mainly due to the fact that the dilatation of the stomach with gas produces a mechanical interference with the heart action and consequently disturbs cerebral circulation, a serious attack of vertigo is probably never due to stomach conditions alone.

Specialists in gastric diseases are not agreed as to the specific form of gastric disturbance that may be responsible for so-called stomach vertigo. While most experts consider that secretory disturbances of the stomach form the underlying condition, there are not a few who with Boas of Berlin think that interference with the motor functions of the stomach are the true cause of the vertiginous symptoms. On the other hand there are many who do not hesitate to express the opinion that neither motor nor secretory disturbances of the stomach are of themselves sufficient to account for the vertigo sometimes called gastric. For many of the French school of medicine, as also for not a few thinking practitioners outside of France, the influence of some such additional etiological factor as the gastro-intestinal auto-intoxication described by Bouchard seems necessary for the satisfactory explanation of the occurrence of vertigo in conjunction with dyspepsia.

In a review of Trousseau's original cases of vertigo e stomacho Dr. Fisher, in the symposium on vertigo at the New York Academy of Medicine (see MEDICAL NEWS this week, page 330), showed that there was always a marked general neurotic condition present in all the patients and that at times the symptoms of vertigo manifested themselves before any signs of stomach trouble were noticed. It is well known how readily certain neurasthenic patients complain of such symptoms as vertigo and how easily even very slight suggestion will lead them to the visual hallucination of the rotary movement of objects within sight and the development of an impending sense of evil. Pseudo-angina pectoris is usually associated with nervous dyspepsia and not infrequently there are certain vertiginous feelings complained of. This affection is now commonly conceded to be a manifestation of the general nervous condition rather than directly due to the stomach disturbance, yet the presence of gastric symptoms in conjunction with pseudo-angina pectoris is almost unexceptional. It has often been noticed that forms of so-called gastric vertigo are associated with such highly neurotic conditions as agoraphobia, the well-known fear that comes over certain nervous persons when they find themselves in open squares or in market places; or akrophobia, the fear of being on high places, as on a bridge or in the gallery of a theater. These symptoms are a sure sign that the underlying nervous condition is of very great importance in the individual affected.

The forms of gastro-intestinal disturbance, with which vertigo may be associated, are so varied that it seems almost impossible to trace any specific causal connection between the conditions. It is not an unusual experience for patients to feel some symptoms of vertigo when a stomach tube is first passed. These symptoms disappear after a short time, and besides the passage of the stomach tube fails entirely after awhile to arouse the vertiginous reflex. The esophageal and gastric nerve endings become accustomed to the irritation set up by the foreign substance and react but very slightly. In nervous patients, however, the tendency to vertigo may never cease to recur and may prove a serious annoyance at every pas-

sage of the tube. There are other reflexes from the mucous membrane of the digestive tract that may prove similarly active. In extremely sensitive people the giving of a large enema may cause a feeling of vertigo. Leube has reported the case of a patient who suffered from vertigo every time rectal examination was made.

It would seem, then, that the term "stomach vertigo," in the sense that dyspepsia may of itself be an active factor in the production of vertigo, needs to be much more limited in its comprehension than has been heretofore considered necessary. Most of these cases are really nervous vertigo in patients who suffer also from some disturbance of their digestion. This may take almost any form and may be due to hypersecretion, or hyposecretion, or failure of gastric motility and may be accompanied by constipation or diarrhea. Successful treatment requires attention to the general nervous system as well as to the dyspeptic condition, and this latter is itself often dependent on the neurosis and will disappear with the amelioration of the neurasthenia. On the other hand there are severe forms of vertigo of important significance from a diagnostic standpoint whose indications are often unfortunately missed, or the realization of their meaning delayed, because of the prevailing impression that vertigo is not infrequently a symptom of functional gastro-intestinal disease. Some of these as Menière's disease, are not promising in their treatment so that a delay in recognition is not serious. It must be borne in mind, however, that a certain number of those persons who perish from drowning every year, instead of being taken with the conventional cramp, are victims of acute exacerbations of Menière's disease and need to be warned. With regard to brain tumor, however, the vertigo may be one of the earliest symptoms and the recognition of the character of the lesion before the neoplasm has contracted adhesions and injured surrounding nerve tracts, is the best possible preliminary for radical operation.

ECHOES AND NEWS.

NEW YORK.

Public Baths and Public Health.—The daily press announces that Dr. Walter Bensel, who has charge of the summer corps of the Department of Health, reported last week to the Health Board that many of the public baths in this city were in a filthy and unsanitary condition. The report refers in particular to the baths at the Battery, West Thirty-fifth street, West Eighty-second street, East Third street and Corlears street. Dr. F. S. Dillingham, the assistant sanitary superintendent, to whom the matter had been referred, reported to the board as follows: "Investigation of the floating baths situated on the waterfront of this city shows that many of them are in an unsanitary condition and are located near the mouths of sewers which contaminate the water. Previous investigation of the baths on the land shows that many are kept in an unsanitary condition and that the water is not changed oftener than once or twice a week. These baths should be directly under the supervision of the Department of Health, and I would recommend that section 200 of the Sanitary Code be amended to read that no baths be maintained in the city of New York or along the waterfront without a permit from the Board of Health." Dr. Dillingham's recommendation was adopted.

Preventive Medicine.—In our issue of January 11 we called attention to the prizes offered by the Maltine Manufacturing Company for the best essay on preventive medicine. A further circular has just been received which may prove of interest. It reads: "Believing that a proper exercise of preventive medicine is of incalculable importance to the human race and desiring to stimulate further research in this line, or at least to disseminate some of the newer ideas so prominently discussed by the medical profession of recent years, we offer two prizes: A first prize of one thousand dollars and a second prize of five hundred dollars in cash for the best essays on that subject.

"Conditions of the Competition.—1st. Essays offered in competition must treat the subject of Preventive Medicine in its various relations to the welfare of the human race, either treating the topic in its broadest scope as affected by disease, custom, environment, heredity, etc., or from the view-point of the specialist who contends that the most potent factors inimical to mankind result from special conditions which he is enlisted to combat. 2d. In order that there may be no violation of medical ethics and no suspicion of mere commercialism on our part, Maltine or any of its combinations *must not be mentioned or even indirectly alluded to in the essays.* 3d. Competition is open to graduates of all recognized medical colleges. 4th. The essays will be judged by the following gentlemen: Daniel Lewis, A.M., M.D.; Charles A. L. Reed, A.M., M.D.; John Edwin Rhodes, A.M., M.D., and the prizes awarded in accordance with their decision. 5th. The essays are to consist of at least 10,000 words. 6th. Each competitor is to send us three typewritten copies of his essay. These copies are not to be signed by the author, or contain anything which might point to his identity, but are to be signed with a *nom-de-plume.* 7th. A sealed envelope shall be sent to us containing this *nom-de-plume* together with the author's name and address. This envelope must be endorsed 'For Identification,' and will remain sealed until the judges have decided upon the two prize-winning essays, and will then be opened in order that the names of the successful competitors may be ascertained. 8th. The prize essays and any others which are deemed suitable will be published in a medical journal or journals subject to the approval of the authors. 9th. We reserve the right to republish any of these essays in pamphlet form, restricting the circulation to the medical profession. 10th. *Essays entered in competition must be in our hands by September the first, 1902.*"

Malaria in New York.—In continuance of the work of the Health Department, as noted in the MEDICAL NEWS of last week, the Board of Health has sent out a circular for the people which is signed by Commissioner of Health Lederle and Dr. Hermann M. Biggs, the medical officer, declaring that the disease undoubtedly originates from the bill of the malaria-spreading

mosquito (anopheles). The circular continues: "To prevent malaria, therefore, we must either destroy the dangerous mosquitoes or avoid their bites. In practice, both expedients are desirable. As the malarial mosquitoes bite as a rule only at night, one will be usually safe by protecting his bedroom either with screens at the windows or a mosquito bar carefully arranged over the bed. Before going to bed one should kill all the mosquitoes resting on the bedroom walls, in the closets or under articles of furniture, as the insects already in the room are most apt to give trouble. Moreover, all cases of malaria already developed must be carefully isolated under mosquito netting until pronounced by a competent physician to be cured.

"The other and still more important measure is to prevent the breeding of mosquitoes in one's neighborhood. All mosquitoes require standing water to lay their eggs in. To kill the mosquito larvæ, therefore, the rule is simple: No standing water. Where standing water must be had for washing or drinking the top of the receptacle should be closely covered with wire gauze—not the smallest opening being left at the margin. When drainage can not be made possible, the surface of the water should be covered with a film of kerosene oil. The oil may be poured on from a can or sprinkler. It will spread of itself. One ounce of oil to fifteen square feet of water is enough. The oil must be renewed about once a week during the mosquito season. Mosquitoes do not fly far from their breeding places, and if all the householders in a given neighborhood will observe the simple rules given, experience has already amply proved that the results will be amazing. Persons keeping stagnant water on their premises are guilty of maintaining a nuisance, and it is the purpose of the department to proceed against all who neglect the warning of the department in this respect. Where large bodies of water, the drainage of which is too expensive for private enterprise, are in question, the department hopes to enlist the assistance of the proper city authorities so that there need be no reason why the plague of mosquitoes and malaria in the suburbs of New York should not be entirely removed."

PHILADELPHIA.

Pharmaceutical Association to Meet in Philadelphia.—The semi-centennial meeting of the American Pharmaceutical Association will be held in this city beginning September 8, 1902. It is expected that 1,000 delegates, including a number from foreign countries, will be present.

Gifts to Hospitals.—By the will of Mary E. Jackson beds are endowed in hospitals as follows: $6,000 for free bed in Home for Consumptives; Pennsylvania hospital, $5,000; Protestant Episcopal hospital, $5,000 to endow a bed in the Harrison Memorial annex for incurables, persons afflicted with cancer to have the first claim.

Dentist Severely Injured.—Dr. Arthur R. Dray, of the operating clinic of the Dental department of the Medico-Chirurgical College, met with a serious injury August 9 by falling through a railroad trestle near Fort Hill. Both of Dr. Dray's wrists were broken and his back severely bruised. Dr. Dray is a native of London, Eng., and spent much of his early life as a missionary in India.

Sanatorium for Consumptives.—This sanatorium at White Haven is overwhelmed with requests for admission. Already there is a waiting list of 100 and applications average five a day. The plans of the organization provide for three institutions in addition to the one named above. The President, Dr. Lawrence Flick, declares that tuberculosis could be stamped out in Pennsylvania in 15 years at a cost of $6,000,000.

Change of Quarantine Officers.—Dr. Hiram W. Austin, who for the last four years has been chief surgeon in charge of the United States Marine Hospital Corps at this port, and of the government quarantine station at Reedy Island has been transferred to Detroit, his successor being Dr. Fairfax Irwin, who comes from the Boston Marine Hospital. During his service here Dr. Austin became very popular, and made many improvements at the quarantine station.

Fraud in Canned Meats.—It is reported that the agents of the State Dairy and Food Commissioner have unearthed an audacious fraud in canned meats that rivals the famous nutmeg swindle. An examination of certain cans of meat labeled Hamburger steak disclosed the fact that they contained ground refuse meat, bones, and sawdust, preserved and colored red with chemicals declared to be injurious to health. The product is said to have come from a New England firm.

Filtered Water is Again Promised.—The water department has again promised that a portion of Philadelphia will soon have filtered water. That part of the Roxborough plant which will supply Manayunk and Germantown has been completed and filled with sand, the material now needing only to "mellow" before it is ready for use. These districts may expect filtered water at an early date. The principal filtration beds at Torresdale are still very far from completion.

CHICAGO.

Appointment of Dr. Snow.—Dr. Morton M. Snow has been commissioner, first lieutenant and assistant surgeon, I.N.G., and assigned to the First Cavalry.

Appointment as Assistant Surgeons.—Drs. Frederick H. Blayney and W. A. Kuflewski, upon the recommendation of the regimental commander, have been appointed assistant surgeons in the Illinois National Guard, with the rank of first lieutenant, and assigned to duty in the Second Infantry.

Suit Brought by Dr. Peck.—Dr. A. H. Peck, dean of the dental department of the Illinois State University, has brought a suit for $10,000 for damages, against Dr. Cassius C. Rogers. The basis of the controversy is asserted to be the publication at the instance of Dr. Rogers of an article in the July number of the Journal of the American Medical Association making the charge of plagiarism against Dr. Peck.

Physicians Endorse Healy.—Daniel D. Healy, republican candidate for sheriff, received on Monday, Aug. 4, as a parting present, an endorsement of his candidacy, signed by more than 900 physicians and surgeons of Chicago and Cook county. The document was handed to Mr. Healy just before his departure for Colorado, and included among the names were those of many of his associates in the administration of the County Hospital.

Illness of Mr. Whitford.—Mr. William Whitford, the well-known medical stenographer of Chicago, has been suffering for the past two weeks from an attack of appendicitis, for which he was operated on. Mr. Whitford is the official reporter for most of the national medical associations of the country, as well as the local medical and dental societies. He is progressing very favorably, and it is hoped will soon be able to leave the hospital.

Pure Food Lawsuits.—Fifty-two suits have been started by the Illinois State Pure Food Commission in various Chicago and out-of-town justice courts against persons charged with violating various pure food ordinances and laws. Commissioner Alfred H. Jones has been at the head of this crusade, and is push-

ing the prosecution against the alleged violators with considerable vigor. Most of the charges are violations of the vinegar and butter laws.

Miller Must Stand Trial.—O. E. Miller, of the St. Luke Society fame, received a setback in Justice Chott's court, when his attorney sought to secure his release on a technicality. It was set up by the attorney that the complaints were faulty, and that the evidence submitted by the prosecution was the same as had been offered in another case. Justice Chott overruled the motion to dismiss, and informed the lawyer that Miller would be compelled to make a defense to the allegations. He is charged with having conducted a hospital without a license in connection with his liquor and drug treatment at the St. Luke Society institution. Evidence was to be heard Aug. 12.

Surgery on Trains.—Train employes of the Northwestern Road are to receive instruction in the science of medicine and the art of surgery, so that they shall be able to set a broken leg and bind up the wounds of the injured. W. A. Gardner, general manager of the company, now has the plan under consideration, and, together with Dr. Owen, chief surgeon of the company, is arranging the details. The purpose of the project is to make every train crew on the Northwestern system competent to give first aid to the wounded and injured in wrecks. Railway surgeons have estimated that at least 50 or 75 per cent. of the deaths which now occur from injuries received in railway wrecks would not occur provided the injured received skilful and intelligent aid at once. The value of the theory has appealed to the officials of the Northwestern.

Scope of Instruction.—It is proposed to establish a school of instruction where train crews can be taught rudimentary surgery, become familiar with many of the remedies used for the purpose of temporary relief, and learn what materials are used, and how to use them. In this connection, every passenger and freight train will carry a medicine chest, well stocked with all the materials which the physicians and surgeons think essential for the purposes. Decision has not entirely been made as to the contents of the medicine boxes, but they will have, among other materials, a supply of splints, cotton, bandages, various lotions, salves and restoratives. The employes who will receive instruction as to the best manner of using the supplies are engineers, firemen, conductors and brakemen. One of the main things to be taught is the art of binding up a wound after having cleansed and disinfected it. This alone, it is claimed, will result in saving many people and making the lot of many more comfortable when injured.

Hospital in Need of Funds.—The emergency hospital, conducted under the supervision of Dr. Gertrude Gail Wellington, in Plymouth Court, threatens to be permanently closed, owing to lack of funds for its maintenance. This is one of the two down-town emergency hospitals, where injured persons can receive immediate medical treatment without the necessity of a long drive in an ambulance to the county hospital. It has been used largely by the police, as it is the most central. The majority of patients brought in have been charity cases. The immediate cause of the financial straits is the increase of rent from $60 a month to $175. This amount Dr. Wellington declares she cannot pay without outside help. There is no fund now provided by the city for emergency cases, as in previous years, but the city has had the use of the hospital nevertheless. According to Dr. Wellington, the hospital will be closed Oct. 1, unless citizens assist in raising money to pay the rent and to provide for it. "The city ought to help," declared Dr. Wellington. "For two years I have paid all expenses myself, and have not received a cent from it. If a committee will carry on the work, I shall retire. It is essential that some place be provided downtown for emergency surgical cases." Chief of Police O'Neill and Secretary Pritchard of the board of health, each declared the hospital to be of great service in emergency cases. "Having a place so handy has been the means of saving many lives," said Chief O'Neill. "I would be sorry to see it closed."

Typhoid Fever Reaches Epidemic Stage.—Up to Monday evening, there were 165 patients in the County Hospital suffering with typhoid fever. Seven patients out of a total of 40 admitted to the hospital on Aug. 1 were typhoid fever patients, and on Aug. 2 twelve more were received. There are 18 cases at the Presbyterian, 22 at the Alexian Brothers', and 20 at the West side hospitals, and nearly every one of the institutions in the city has a colony suffering from this disease, which is feared more than smallpox by the physicians. The weekly reports of the health department show a total of 16 deaths from typhoid during last week. That the number of fatalities is not larger is due to the fact that the epidemic has not been running long enough for the disease to have run its course in the greater number of instances. The mortality is expected to be much heavier this week. The outbreak of typhoid is thought to be due to the long-continued rains during May, June, and July. Impure drinking water, produced by the constant flushing of the sewers and the streets in the heavy thunderstorms, is said to be responsible for a great number of cases. The old advice of "Boil all drinking water" is urged by the health department as the best means to prevent the disease, and it is advised, in addition, that a careful watch should be kept on all uncooked foods, especially milk and ice. The sudden spread of typhoid at this season of the year is regarded as a baleful sign. The medical profession has grown to look for a large increase in the malady during the early part of September, and it sometimes continues as late as December. Seldom does it make its appearance in the first week of August. As yet, the great percentage of cases have been mild in their character, and most of the patients are recovering. A peculiarity of the disease seems to be that nearly every patient has symptoms of diseases of the respiratory organs, such as bronchitis or pneumonia.

GENERAL.

The Fifteenth Congress of the French Surgical Association.—This congress will be held in Paris, October 20 to 25, 1902.

To Limit Use of Saccharin.—Laws recently passed in France and Germany prohibit the use of saccharin for other than medicinal purposes, and require a special license for its manufacture.

Craig Colony Assistants.—The Craig Colony for Epileptics at Sonyea in Livingston County wants to secure the services of recent graduates in medicine to act as Medical Internes. The positions are unpaid, but those who hold them get board, lodging and laundry free. The opportunity offered is the very best for studying epilepsy and other nervous diseases, and considerable experience may also be had in general medicine and surgery. For further information write Dr. W. P. Spratling, Medical Superintendent, Sonyea, N. Y.

Annual Meeting of the Medical Society of the Missouri Valley.—The annual meeting of this association will be held on September 18 at Sioux City, Iowa, and from present indications it will be one of the most interesting sessions of the year. The following

papers have been promised: Vernal Catarrh, especially in Adults, H. Gifford, Omaha; Dysmenorrhea, W. O. Henry, Omaha; Light in the Treatment of Tuberculosis, J. W. Kime, Ft. Dodge; Surgical Treatment of Cleft Palate, A. P. Condon, Omaha; Ileo Colitis, W. Berry, South Omaha; Chronic Spinal Muscular Atrophy, F. E. Coulter, Omaha; Multiple Compound Fracture of the Skull, G. G. Cottam, Rock Rapids, Ia.; Surgical Treatment of Lesions of the Stomach, J. E. Summers, Jr., Omaha, Neb.; Vesicular Mole, Mary Strong, Omaha, Neb.; Uretero Cystostomy, A. J. McKinnon, Havelock, Neb. The regular program will be issued September 1.

Flies and the Cholera.—The ordinary household fly is partly responsible for the awful spread of cholera in the Philippines, says Major L. M. Maus, Commissioner of Public Health for the Philippine Islands, in a report just received at the War Department. The report says that from March 20 to May 15, 1,005 cases of Asiatic cholera were reported in Manila, 800 of which resulted fatally. The cases in respect to nationality, deaths and mortality were divided as follows:

	Cases.	Deaths.
Filipinos	862	699
Chinese	103	71
Americans	23	18
English	13	10
Europeans and others	4	2

Since it has been definitely determined that the epidemic was the result of food infection, great attention has been paid to the supervision of the markets and cooked food shops and the preparation and care of food in the native houses. Rules and regulations were issued prohibiting the peddling of all drinks and cooked food on the streets, prohibiting 23 special articles of diet prepared by the Chinese for sale to natives and demanding a rigid enforcement of the order for keeping all articles of diet in the city covered and free from flies. Many samples of food were sent to the laboratory for examination, also a number of flies caught in infected houses. The cholera spirilum was found in several samples of the food, especially in cooked rice, which was left exposed, and in some of the blue bottle flies. There is no doubt but that the ordinary household flies can also transfer the cholera spirilum from infected matter to food, as is the case with typhoid fever. The Board of Health has inaugurated a crusade against flies by means of fly poison. Outside Manila there were 2,709 cases of the disease and 1,694 deaths.

The large blue bottle fly is said to be also an active agent. A careful entomological study of the flies is advisable.

Lake Keuka Medical Association.—The third annual meeting of the Lake Keuka Medical and Surgical Association will take place at Lake Keuka, Aug. 19, 20, 1902. The following program has been arranged: President's Address, State Legislation for Nurses. By Sylveen V. Nye, Buffalo. Discussion opened by Catherine E. Latta, Geneva; Care of the Infant. By J. L. Miller, Corning. Discussion opened by C. W. M. Brown, Elmira; Appendicitis, with Report of Some Unusual Cases. By C. H. Ott, Robert Packer Hospital, Sayre, Pa. The Rational Treatment of Appendicitis. By C. M. Post, Alfred. Discussion opened by Henry Flood, Elmira; What, When and How Shall We Eat to Insure Long Life. By William E. Palmer, Hornellsville; Vegetarianism, by a Vegetarian. By Mrs. C. W. Etz, Hornellsville; A Further Discussion of Diphtheria, with Reference to its Control. By William Austin Macy, Willard State Hospital. Discussion opened by C. O. Green, Hornellsville; Valves of the Rectum. By James C. Tuttle, New York; The Eye in Nervous Diseases. By Wm. C. Krauss, Buffalo. Discussion opened by Wheelock Rider, Rochester; Ex-Ophthalmic Goiter. By George Himelsbach, Buffalo. Discussion opened by C. E. Doubleday, Penn Yan; The Causation and Care of Backwardness in Children. By Frank H. Koyle, Hornellsville. Discussion opened by Geo. M. Case, Elmira; Points of Necessary Prominence in the Treatment of Chronic Catarrhal Deafness. By Sargent F. Snow, Syracuse; A Surgical View of Chole-lithiasis. By Eugene A. Smith, Buffalo. Discussion opened by W. W. Skinner, Geneva; The Insanity of George III. By D. R. Burrell, Canandaigua; A Case of Biliary Calculus, with Complications. By O. J. Hallenbeck, Canandaigua. Discussion opened by T. A. Wales, Elmira; The Complications and Degeneration of Fibroid Tumors of the Uterus. By C. C. Fredricks, Buffalo. Discussion opened by H. P. Jack, Canisteo; Diagnostic Palpation for Prolapse of the Kidney and Method of Fixation. By A. H. Goelet, New York. Discussion opened by B. R. Wakeman, Hornellsville; Rheumatism of the Spine External to the Cord. By Thos. H. Manley, New York; The Treatment of Epilepsy by the General Practitioner. By William P. Spratling, Craig Colony, Sonyea. Discussion opened by Floyd S. Crego, Buffalo; Colles Fracture. By Arthur W. Booth, Elmira. Discussion opened by M. L. Bennett, Watkins; The Diet of the Asthmatic. By George N. Jack, Depew. Discussion opened by H. D. Wey, Elmira; Some Opinions from the Back Woods. By C. R. Bowen, Almond. Discussion opened by H. R. Ainsworth, Addison; The Laboratory as an Aid to Diagnosis. By Edward H. Hutton, Corning. Discussion opened by Frank H. Ross, Elmira; The Technic of Labor. By W. A. Howe, Phelps. Discussion opened by T. A. McNamara, Corning; Internal Eczema. By A. L. Behan, Canandaigua; Hypertrophy of the Prostate. By Wm. B. Jones, Rochester; A Tribute to the Memory of the Late M. T. Babcock. By Clark Bell, New York.

Obituary.—Dr. Erasmus Darwin Beach, the oldest physician in New Orleans died there last week, aged 87. He was born near Cincinnati, Ohio, went to New Orleans in 1846, and had practised medicine for more than half a century. Dr. Henry Darling, a well-known physician of Washington, died at his home at Brightwood, D. C. last Thursday, aged 58 years. He was a graduate of the University of Virginia, and of the medical department of the University of Maryland. Dr. Roy H. Hawkes died from typhoid-pneumonia Tuesday at his home, No. 42 East 112th street. Born in 1872 in North Bridgton, Me., he spent the greater portion of his life in this city. He was graduated from Columbia University in 1892.

CORRESPONDENCE.

TRANSACTIONS OF FOREIGN SOCIETIES.

British.

FORTY-SIX MAMMARY CANCER CASES ANALYZED—PRIMARY SARCOMA OF THE SYNOVIAL MEMBRANE OF THE KNEE-JOINT—CYTODIAGNOSIS OF PLEURAL EFFUSIONS—INFECTIVITY OF THE MILK OF COWS WHICH REACT TO THE TUBERCULIN TEST BUT ARE NOT CLINICALLY TUBERCULOUS.

THE closing months of activity among the various scientific societies of Great Britain were filled with important sessions of all the well-known bodies. Among many numerous topics under consideration the following possess a highly practical value:

T. BRYANT, at the Royal Medical and Chirurgical Society, May 13, 1902, read a paper entitled, "An An-

alysis of 46 Tabulated Cases of Cancer of the Breast Which Have Been Operated Upon and Survived the Operation from Five to 31 Years." The points which the writer elucidated were, (1) the prospects of life after a primary operation for cancer of the breast; (2) the likelihood of a recurrence of the disease at the seat of the operation and in the opposite organ; (3) the influence of the operation upon the general progress of the disease. The standard of cure implied in a three years' freedom from any signs of the disease after operation he regards not only as unreliable but also as misleading, according to his experience in many cases. He subdivides his series of cases into three groups, as follows: Group I comprising 17 individuals who after operation survived five years or more without symptoms or signs of the disease, of whom nine enjoyed this experience from five to 10 years, and eight from 10 to 20 years after interference, and 13 are still alive and very well. His routine operation is to remove the breast with the super- and adjacent skin and fat and for the purposes of safety and examination all the lymph-nodes from the axilla (if at all suspicious) along with the fat. He cleans the surface of the pectoral muscle in all cases and removes it only if it is invaded. Routine ablation of this muscle he regards as unnecessary. Group II included 19 patients who suffered from a recurrence at the seat of the operation. Of these three had the secondary appearance in the scar manifest itself one year after the operation, when a secondary interference done at once secured freedom from a reappearance up to the present time, namely, after four years in two, and nearly 10 years in one of these persons. In nine of this group the recurrence had been delayed between four and seven years, of whom three appeared to demand no second operation. Group III comprises ten women in whom the second breast was involved, and four of them showed secondary deposits in other parts of the body at the same time. If the interval elapsing between the primary operation and a recurrence in the same or in the opposite side be calculated from these 46 cases, it will be found exceedingly variable. In the former half of the series it appeared as five years or less, and in the latter half as varying between six and 32 years, and with two-thirds of the entire series it was 10 years or over. The seat of the recurrence was also various, namely, in the old scar in 14; in the old scar and axilla together in one; in the sternum in three; in the second breast in 10 cases, of whom half had it in the old scar at the same time. He cleared the axilla out in only one secondary operation. His practice is not to ablate its contents at every operation, and yet these results do not show an inadequate operation. They do, however, show that operation for cancer of the breast even when undertaken at a very early period does not secure such flattering results, as was once supposed. When a recurrence has advanced so far as to render another focal operation impossible, he considers two sources of treatment: removal of the ovaries and radiographic therapy. Removal of the ovaries is of highly doubtful utility. The X-ray has proved in very competent hands so very successful that none can properly ignore its claim to acceptance. It must be used, however, by competent persons only. For the average cancerous deposits, it appears that a three months' course of treatment with three applications a week is the shortest period of any value.

C. B. LOCKWOOD, at the Clinical Society of London, May 9, 1902, read a discussion of a case of primary sarcoma affecting the synovial membrane of the knee-joint. The patient was a young woman, married, who for three years had had swelling of the right knee with some flexion but hardly any real loss in the amplitude of the motion. The capsule of the joint was distended by a swelling of the synovial membrane which made the joint three-quarters of an inch larger than its fellow, with some local warmth and tenderness. A consultation was held and the almost unanimous opinion was that the disease was tuberculosis of the knee. No previous treatment had been undertaken, therefore the joint was put at rest in a splint. The patient was not seen again for nearly one year when she again presented herself for a continuance of treatment because the symptoms had increased. A resection was done and at the time of the operation the absence of fluid or pus within the joint-cavity was noted and also the freedom of the tissues from necrotic signs. The specimen was divided between two eminent pathologists, one of whom reported spindle-cell sarcoma and the other oval-cell sarcoma. Lockwood called attention to the deceptive similarities between the early clinical courses of this sarcoma and of tuberculosis, but added that the absence of muscular wasting and of limitations of motion in the joint were probably distinctions between the two diseases. There could be no doubt, however, as to this disease having been true sarcoma primary in the synovial membrane of the knee-joint.

G. L. GULLAND, at the Edinburgh Medico-Chirurgical Society, May 7, 1902, contributed a monograph on the cytodiagnosis of pleural effusions. He stated that there are several varieties of pleural effusion, like empyema, in which examination of the cells of the fluid was not necessary, because a recognition of the germ which excited the exudation was alone required. In the serous forms of pleurisy, however, an examination of the cells was on the contrary advisable because for many years the cause of this common acute affection of the chest had been under dispute, as to whether it is rheumatic, tuberculous, idiopathic, or acutely infectious. For many years the rheumatic origin of the disease was the most generally accepted, but at the present time tuberculosis is more and more believed to be in the causative relation of pleural effusions which can not otherwise be explained. The purely idiopathic theory also has adherents. The selection of the mode of treatment depends upon the accuracy of the diagnosis. In the discussion of the tuberculous cases little heed is attached to that form of pleurisy which is secondary to a well-established and previously-diagnosed phthisis. There are, however, many tuberculous cases in which the lungs are not affected, and an early appreciation of their nature is the first element in their proper treatment. In such cases the disease of the lung may be so slight as to give no physical signs, or only transitory signs which are readily overlooked. In such chests a serous exudate from the pleura will relax the lung and obscure what signs might be found and for the first short time hide symptoms like sputum from the lung. On the other hand the peculiar signs of pleurisy like bronchial breathing may simulate lesions in a lung really sound except as to its serosa, and therefore lead to a diagnosis of disease in the viscus. The injection of tuberculin as a diagnostic step is of no value because the patients already have fever daily. The sero-diagnosis of tubercle is also of little value because fraught with so many technical difficulties as to render the likelihood of a perfect technic very small. The morphological examination of the blood is also not of much value, because in slight cases the blood changes are absent or too slight to be definite, while in the severe cases the leucocytosis might be extreme. A differential leucocyte count is, therefore, not very reliable. In the absence at present of any other means of diagnosis he considers an examination of the fluid

exuded of prime interest. Organisms are best recovered from the exudate when it is very fresh because the fluid is so highly bactericidal that the germs are either destroyed or rendered incapable of cultivation upon the usual media. In cases of tuberculosis the bacilli are very difficult to demonstrate for this reason, and also because they are always relatively very few and their toxins rather than themselves cause the exudate.

In examining the cells of the exudate the following procedures were recommended by him: A syringe, sterilized by boiling, sufficiently capacious to withdraw enough fluid for centrifugation must be employed. If the cells are very numerous the examination could go forward without the centrifuging. His own formalin-alcohol method of fixing the films is very serviceable, so are the eosin and methylene-blue and Jenner's stains, but not the tri-acid stain. To show the granules in the polymorphonuclear cells sudan, followed by hemotoxylin when fat is to be demonstrated and by iodine when glycogen is in question, is endorsed by him. The cells of the exudate fall naturally into two groups, namely, those from the blood and those from the tissues. Red blood-cells and leucocytes, polymorphonuclear neutrophile cells and lymphocytes are common, basophilic leucocytes are infrequently and eosinophylic cells, almost never seen. The red blood-cells show no alterations of diagnostic value. The polymorphonuclear neutrophile cells may, and usually do, resemble their normal appearances in the blood when the specimen is fresh, but if the specimen is old various degenerative features are the rule. Their cell-body might undergo simple dissolution and so render the granules free to float about, or produce a fatty degeneration which is a great rarity in specimens from the circulating blood, but quite common in exudates. The same comparison obtains with reference to glycogenic degeneration. The nucleus of this type of cells might lose some or all of its affinity for the basic dyes and stain faintly, or it may lose its intranuclear network and color deeply and homogeneously. The lobes often separated one from another and broke up into fragments, each taking a part of the nucleus with it, or the nucleus as a whole ran together and stained homogeneously and then may be mistaken for red blood-cells with nuclei. The lymphocytes usually appeared just as they do in the blood and are evidently less apt to degenerate than the polymorphonuclear cells. The tissue-cells come commonly from the endothelial covering of the pleura. They sometimes occur in clumps, but more often they are single. They resemble leucocytes somewhat, but have round nuclei and bodies either of uniform or ragged outline and considerably larger. As regards the tuberculous exudates *per se*, the description varies according as to whether the examination be made during the first three days or later. In the earlier period the polymorphonuclear cells abound, but after the third day they become relatively fewer and are replaced by the lymphocytes. In well-established tuberculous pleurisies there will be red blood cells, many lymphocytes, a few polymorphs and some endothelium. The lymphocytes always reach half and may be two-thirds to four-fifths of the total number of cellular elements.

The importance of differentiating between other cells degenerated so as to resemble the lymphocytes and the lymphocytes themselves is of importance because of the significant rôle which the lymphocyte plays in these exudates. The number of endothelial cells is small, probably because the fluid spreads rapidly over the surface of the serosa. Pleura effusions caused by the pneumococcus and the streptococcus follow the same law as to a great predominance of the lymphocytes, the relative scarcity of the polymorphs and endothelium which may be more or less degenerated. Red blood corpuscles occur, of course. The relation between the polymorphs and the endothelial cells seems to be that the more acute the process and the more apt it is to go on to empyema, the greater will be the relative number of the polymorphonuclear cells altered and degenerated, although the quantity of fresh and altered endothelium will also be augmented. Edematous effusions, as in heart and kidney disease, are apt to be rich in desquamated endothelial cells. Pulmonary apoplexy with effusion is accompanied by polymorphs. Malignant neoplastic pleurisies usually show large bunches of the cells desquamated, many in a degenerated especially fatty condition. Many polymorphs are also present. By these points he has been able to diagnosticate tuberculous and simple pleurisies, so that their subsequent courses bore out his opinions. He hopes that the data will be serviceable in the hands of other observers and become fully reliable.

E. J. MCWEENEY, at the Royal Academy of Medicine in Ireland, April 25, 1902, read a paper on the infectivity of the milk of cows, which reacted positively to the tuberculin test, yet shows no signs of tuberculosis clinically. The very great importance of the question lies in that detail of it which refers to the propriety of the consumption of such milk by human beings. In order to begin at the foundation of the matter he proceeded to investigate the percentage of cows which, while reacting to the tuberculin test gave no clinical evidence of that disease. He first investigated a herd of 80 to 100 cows kept under conditions of hygiene far above the average and was surprised to find fully 50 per cent. reacted positively to the tuberculin test. At a later date he examined another herd in the south of Ireland which was not kept under hygienic surroundings and proved that 80 to 90 per cent. reacted positively. To decide that the milk from such animals was not fit for consumption would mean a cutting-off of the milk supply, which was not practicable. Some of the reactions to the test were of unusually pronounced type, the fever reaching 104°, 105°, 106° and even 108° F. in some cases. Strange as it may seem the fever was in inverse ratio to the degree of the tuberculosis, probably because those animals which had a clinical manifestation of the disease had already had their blood immunized by this toxin, hence this added dose produced scarcely any reaction. In the animals which gave the violent reactions he found not more than one or two caseous glands, chiefly in the posterior mediastinum. All these observations are based upon post-mortem examinations, because all animals upon which he experimented were killed and examined. All those which had only one or two infected deposits had been producing milk in which no tubercle bacilli were found after painstaking search. He also carried out a number of experiments for demonstrating the effects of the milk from these cows, when fed to young animals. It must be remembered that certain "acid-fast rods" may be mistaken for the bacilli.

Almost the identical experiments by PERSTATAY, in Berlin, were carried on with the following results: He fed young calves and pigs upon the milk of such cows as reacted to the tuberculin test, but had no clinical evidence of the disease. The calves were thus fed for two months and the pigs for seven months without one instance of tuberculosis. The milk of cows which reacted in this manner could not be demonstrated to contain bacilli. If the udder had any deposits then they were always abundant in the milk. Bang of Copenhagen gave one liter of milk from a cow with a tuberculous udder and the animal died in short time as if

poisoned. The percentage of cows having tuberculosis of the udder has been calculated at between two and four. McWeeney has himself not yet seen a case of it. When encountered, any good veterinarian should be able to diagnose it at once. McWeeney thinks that bovine tuberculosis is capable of infecting man.

SOCIETY PROCEEDINGS.

BRITISH MEDICAL ASSOCIATION.*

Seventieth Annual Meeting, Held at Manchester, July 29, 30, 31, Aug. 1, 1902.

(Continued from page 237.)

Natural History of Disease a Basis for Therapy.—Sir Thomas Barlow in his address on medicine said that worrying times are these, and we have often to possess our souls in patience. There are those who still maintain that medicine has no claim to the title of an exact science, and yet some of the most estimable fellow-citizens do all that lies in their power to hinder the employment of one of the methods which contribute towards making medicine an exact science. On the other hand, in view of the striking development of some of the modern applications of the physical forces, there are not wanting those who sneer at us as bigots and obscurantists when we hesitate to write a blank check for the reckless employment of these modern applications in diseases of which our knowledge is very limited.

But let us reflect how strange and varied has been the progress of practical medicine, by which is meant all that body of knowledge concerned with the cure and the prevention of disease. The history of the earliest efforts in the relief of pain is wrapped in mystery. Perhaps they were not unlike the sports or spontaneous variations which are claimed by the Darwinian hypothesis as the first steps in the development of species, those variations which were useful to the organism being perpetuated by a survival of the fittest. But at all events—and let us frankly admit it—the basis of our practice is empiricism, and the basis of all our practical life is empiricism. But there is good empiricism and bad. The good empiricism continually strives to follow Nature's lead, and shed that which is foolish and useless while preserving that which is essential. And good empiricism, by carefully recording cases, noting the results of changes made first by chance and then by design, may at length assimilate to a truly inductive process, even though there are many unknown quantities. But as Nature herself seems sometimes to fail, and leaves behind vestiges and survivals in our bodily conformation which may give rise to trouble, so we also in our treatment sometimes preserve methods of long past utility which may now and again be harmful.

How much we owe to the good sceptics—or, in other words, the independent observers—of whom Sydenham was one; and of whom, in our generation, there was no finer example than Sir William Gull. These are the men who have taught us to look disease straight in the face with our own eyes, and to realize what is its natural cycle, and ask ourselves within what limits we can reasonably hope to modify it. And as a warning against becoming self-centred and self-opinionated, let us never forget Bacon's wise aphorism: "For as they were men of the best composition in the State of Rome which either, being Consuls, inclined to the people, or being Tribunes, inclined to the Senate; so, in the matter we now handle, they be the best physicians which, being learned, incline to the traditions of experience, or, being empirics, incline to the methods of learning."

It is in the period of half knowledge that the practice of medicine has often cut a sorry figure. For theoretical lines of treatment, based on incomplete physiological and chemical data, have often produced melancholy failures.

But the outcome of the new experimental pathology of the last quarter of a century, controlled by clinical observation, applied and tested by clinical experience, has justified us in claiming that at length our work has ceased to be fairly described as groping in the dark, and that in some definite instances medicine has justified for itself the designation of an exact science.

Bacteriology and Treatment of Diphtheria.—He chose as his first illustration one of that group of acute specific diseases to which in his discourse Sir William Roberts gave his chief attention. He recalled the chaotic and bewildering state of doctrine on this disease only a dozen years ago. There were the endless, and not altogether academic, disputes as to the difference between croup and diphtheria; as to whether there was a true membranous croup which was different from laryngeal diphtheria; and as to the diagnostic differential signs of diphtheria which appeared to elude the most careful anatomical definition. Malignant diphtheria of the throat was easy to diagnose, but as to the nomenclature of mild cases simulating follicular tonsillitis, and of the throat exudations complicating scarlet fever, an experienced man was the last person to dogmatize. It was only, at length, by studying cases in epidemic groups, and especially by noting the paralytic sequelæ, that it was learned how widely the net must be cast in order to include examples in which there had been no visible membrane at all, though there might in some of them have been exudation in the post-nasal region, and, for a time, thin irritating discharge from the nostrils. The opinions as to its etiology were as diverse. The profession was not prepared to deny that exposure to cold was a cause, and after cold came drains. Drain poisoning, serious as it is in lowering vital resistance and preparing a suitable soil, has been often made to bear more than its fair share in the immediate causation of specific disease, and diphtheria was a notable case in point. Sir William Jenner, whose enlightened doubts were nearly as valuable as his absolute statements, would never admit that the direct relationship of diphtheria and drain emanations was proved. But the confident assurance of many people on this doubtful point was often exceedingly mischievous, for though it led to sanitary investigations and helped sometimes to bring about sanitary improvements, it also led to the quiet ignoring of other possible sources of the disease. There was a time, not many years ago, when cases of membranous croup were treated in children's hospitals in ordinary wards, and there were those who stoutly maintained that these cases were not contagious.

The further study of epidemics led to the conclusive proof that in some cases the disease was disseminated by milk. Then came the observation that epidemics were often followed by sporadic cases, or preceded for a time by mild and ambiguous sore throats. By degrees, even in apparently sporadic cases, we attached more and more importance to insidious personal contagion, and to see that the disease was maintained and became manifest by the moving to and fro of slight cases, especially in schools and places where children were closely aggregated. Increase of the disease seemed to correspond with the period when compulsory school

* From advance sheets by courtesy of the Editor of the British Medical Journal.

attendance was enforced, and there grew up a strong presumption in favor of the tenacity of infective material associated with bedding and clothing.

And if there were wide differences of opinion as to the signs and causation of the disease, how varied were the different lines of treatment. He recalled the routine administration of antimonials and emetics in laryngeal cases which held sway so long, probably on account of the confusion in diagnosis. The cases that were benefited were those of simple laryngeal and tracheal catarrh with spasm, but the true membranous cases were almost certainly made worse. It was but slowly that the consensus of opinion grew in favor of quinine and iron and other tonic methods. The local applications were multiform, and all remember the pitiful struggles of many a tender child at the swabbings which were fruitlessly and repeatedly applied. When the bacillus of diphtheria had been isolated by Klebs and the inoculation of it in animals had been demonstrated by Loeffler to produce diphtheritic lesions, the first step had been taken in unraveling the skein. But medical science is further indebted to the bacteriologists for solving some of the clinical difficulties by demonstrating that not all false membranes are diphtherial. The streptococci, for example, seem capable of giving rise to pseudo-membranous deposit. The exudation occasionally present in early scarlatinal throats, which are extremely red and swollen, is not generally true diphtheria, and this harmonizes with what is found clinically, that the exudation seldom spreads, and that paralysis does not supervene.

On the other hand, the secondary membranous exudations which sometimes supervene in measles and in the late stage of typhoid appear often to be due to true diphtheria bacilli. But further investigation seems to be required as to the virulence of, and the dissemination from the secondary cases. Thus far as to the bacilli. But the skein becomes still further unraveled by the discoveries of Roux, Yersin, and Sidney Martin on the toxin of diphtheria. The first two observers separated the toxin from the bacilli, and produced by inoculation many of the symptoms of the disease, but *minus* the formation of false membrane. Whether, as Sidney Martin maintains, the bacilli at the local site of the disease elaborate a ferment-like body, which, subsequently affecting the tissues, digests them, and the products of this digestion constitute the toxins, or whether, as others hold, the bacilli themselves elaborate the toxins, is not material. The solid gain to knowledge is that for the most part the mischief is elaborated locally at the site of the diphtheritic membrane, and not to any great extent by multiplication of the bacilli themselves in the blood and other tissues. And this leads to the researches of Behring and his fellow workers which eventuated in the practical application of the methods of immunization and the preparation of an antitoxin. Since the introduction of the antitoxin, the urgency of local applications to the fauces has become lessened to a marked extent. It is said that antitoxin only neutralizes the toxin, but does not destroy the bacilli themselves. A weak mercurial solution which attacks the bacilli, though it coagulates the albumen, and an alkaline solution which favors the solution of the membrane, seem to be all that are needed. By too much zeal in local applications, one interferes with the protective action of the phagocytes, and the old corrosive applications are entirely ruled out. With continued experience the limitations of antitoxin are becoming more and more clearly understood. A careful man seeks the assistance of the bacteriologist in every doubtful case, but does not wait for his report, for he knows that the certainty of success depends on the remedy being introduced early, say within the first three days, and that the risks of its employment are insignificant. The existence of secondary infections makes him far more anxious, and he feels compelled to warn the friends on that account, but it does not prevent his applying the diphtheria antitoxin even in very grave cases.

Of the prophylactic value of the diphtheria antitoxin for those in a family or institution where there is a case of diphtheria it can be said that there seems now a large body of experience in support of its efficacy, although the period of immunity conferred does not exceed three weeks.

Tetanus.—While the diphtheria antitoxin treatment is in every way the most satisfactory of all the serum methods, the other members of this group of therapeutic measures are full of suggestion. Thus, with regard to the tetanus antitoxin, although the experiments on immunization of animals have not furnished a successful method of dealing with the severe and acute cases of human tetanus, yet some benefit has been gained in the chronic forms. It is interesting to observe that the tenacity of the combination between the toxin and the nervous tissues which was shadowed forth in diphtheria is in tetanus the dominant factor. It would appear to be the tissues of the central nervous system for which the toxin has a special affinity, and the later investigations point to the necessity of subdural injections into the cerebral substance itself, as well as into the cellular tissue, and to the employment of far larger doses of the antitoxin than the first immunization experiments suggested.

Other Specific Remedies.—In the other examples of this kind of treatment one must depend on very incomplete data. In rabies the micro-organism is unknown. But the knowledge that the poison is lodged in the cerebro-spinal tissues has led, in the hands of Pasteur and his pupils, to the most fruitful results.

With respect to the employment of antistreptococcus serum most various testimony is evident. Some cases of erysipelas and puerperal fever, and some of those most desperate cases of acute septic mischief following on infections from necropsies, have been strikingly benefited by the use of injections of this serum. Some cases of infective endocarditis appear to have improved, but a great many others have shown no response whatever.

The Treatment of Tuberculosis in the Light of Modern Discoveries.—Koch's great discovery of the tubercle bacillus in 1882 has been so far-reaching and comprehensive that the simplification which it has brought about in our knowledge and in the mode of grouping of a great body of facts seems almost incredible. The most important outcome was that it confirmed the doctrine that tubercle should be placed amongst the chronic infections and so helped the profession to realize, in some sense, the kind of enemy with which we had to deal. With respect to the tuberculin treatment of tuberculosis, it cannot be denied that the results obtained have been on the whole unsatisfactory and tentative. And when it is considered that under the most favorable circumstances both forms of tuberculin can only claim to set up fresh activity in the neighborhood of pre-existing tuberculous lesions with which fresh activity the reaction temperature is associated, it is clear that the result must be, to say the least, problematical. With localized subacute and indolent lesions such as we get in lupus we might fairly expect that such increased activity might sometimes be followed by improvement, and that has unquestionably been observed also in some cases of tuberculosis of joints. But with respect to visceral lesions there is always some risk of dissemination following this renewal of activity and of the setting up of new inflamma-

tory action and necrosis instead of fibrosis in the lesions themselves.

The most important pathological fact bearing on the therapeutics of tubercle is the enormous frequency of unsuspected tubercle as proved by investigation after death of persons dying from other causes than tubercle. A second and equally important reflection is that there exists a tendency in the human subject to spontaneous limitation and arrest; and the third reflection is that there is an extreme frequency of local limited tuberculous deposit as compared with the generalized disease.

The teaching of pathology is that the fortifying of the general resistance of the individual is the most important indication of all. Real true advance always tends to simplification, and the great fundamental therapeutic remedies are the employment of fresh air, sunshine, of good food, and of regulated exercises. This surely is the inwardness of what has been called the sanatorium treatment. Brehmer and Dettweiler and Trudeau and Walther have taught us this.

Dr. Barlow said: It is fitting to remember that sixty years ago an Englishman—a village general practitioner, George Boddington, of Sutton Coldfield—taught, both by precept and by the results of actual experience, what were the proper methods of treating phthisis. The educational side of the sanatorium is all-important. The patient is instructed as to the importance of the disposal of sputa, and as to the methods by which a phthisical patient may live with his fellow-creatures without risk to them. Surely the imperative necessity of enlightened and unremitting medical supervision in work of this kind is self-evident. Whether there will be evolved any better method of carrying out these indications for the treatment of phthisis in its early and middle stages remains to be seen.

As to the prevention of infection, voluntary notification has been established, in Manchester and elsewhere, with very good advantage. There seems to be very little difficulty in securing disinfection of rooms after a fatal case has occurred in the abodes of the poor, and experience would seem to show that, with tact, notification of phthisis during life may be followed by sanitary inspection, and by much useful guidance as to ventilation, cleanliness, and disposal of sputum. The food supply, milk, etc., should be most vigorously inspected periodically.

The Practical Results of the Scientific Study of Malaria.—In the whole range of medicine there is scarcely a disease which illustrates the opening thesis more forcibly than does malaria. The story of the investigations of our countrymen, Manson and Ross, are fresh in memory. Up to a certain point the life history of the malarial parasite had been made clear by the observations of Laveran and Marchiavafa. The amœba-like bodies enter the red corpuscles, live on the hemoglobin, and divide into spores. The latter burst through the envelope of the corpuscle, become disseminated in the blood serum, and repeat the process of the parent organism. But other forms do not develop spores, and in some species these assume within the corpuscles a crescent-like shape. When the crescent-like bodies are observed for some minutes on the warm stage a change of shape takes place, and motile filaments are observed to escape from them. It was at this point that Manson's insight led him to join issue with the Italian observers, who looked on this stage as one of degeneration, whilst Manson claimed that it suggested another life cycle of the organism within the body of some host other than man, which host should be the means of communicating the parasite to man. That intermediate host, he reasoned, must be a suctorial insect, and predicted that it would prove to be the mosquito. Ross's investigations established the truth of this hypothesis beyond any cavil, and narrowed down the number of possible hosts to gnats of the genus Anopheles. The next inquiry was to ascertain the important facts as to the habitats of the Anopheles and its mode of life. And Ross, in the expedition sent out by the Liverpool School of Tropical Diseases, was able to show that the larvæ of these gnats were to be found in shallow pools which were not big enough or permanent enough for fish, and yet were not small enough to dry up between showers. The drainage or filling up of these pools in the neighborhood of human habitations, or systematic destruction of the larvæ by the application of paraffin, appeared to be the readiest way of dealing practically with the problem.

Malta Fever.—In the Malta or Mediterranean fever we have another illustration of how complete exhaustive pathological investigation has led to the rational separation of a given disease from every other. The discovery by Bruce of the life-history of the micrococcus melitensis settled once for all the specific nature of this intractable but not very fatal illness, and separated it entirely from typhoid and malaria.

Acute Rheumatism.—The microbic origin of acute rheumatism was strongly maintained at the meeting of this Association as far back as 1887 by Dr. Mantle, and its clinical analogies with other infective diseases have been repeatedly set forth. The recent researches of Drs. Poynton and Paine seem to have established the existence of a specific diplococcus in the blood, in the valves of the heart, in the pericardial exudation, in the joints, and in the subcutaneous nodules of acute rheumatism. From pure cultures of this organism intravenous inoculations in rabbits have been followed by clinical manifestations and by non-suppurative lesions similar to those with which we are familiar in acute rheumatism. This seems to be a real contribution to the natural history of the disease, and when we have learned something about the rheumatic toxins and about the changes which supervene upon their formation, we shall probably get a more satisfactory explanation of the action of the salicylates than is at present forthcoming, and we may hope for further light as to the treatment of the complications and refractory forms of this common disease.

The Differentiation of Meningitis.—Bacteriology has done a great deal towards the elucidation of the somewhat confused groups of meningitis. Setting aside the septic cases which arise in connection with otitis and bone disease and injury, as well as those severally dependent upon syphilis and tubercle, there remain:

1. The epidemic cerebro-spinal fever in which the characteristic organism is the diplococcus intra-cellularis.

2. The rapidly acute forms, often vertical, but sometimes cerebro-spinal, which are associated with pneumonia, empyema, and ulcerative endocarditis, in which the pneumococcus is the characteristic organism, and

3. The sporadic subacute form especially found among young children, often limited to the posterior region of the base of the brain, but sometimes also spinal, which is usually unaccompanied by any visceral disease whatever. In this form Dr. Still has isolated a diplococcus, allied to that of the cerebro-spinal fever, but with some definite differences.

There is scarcely any group of diseases in which the resources of therapeutics have been so discouraging. It is true that in the first and third of these forms there have been a certain number of recoveries, and, although for his own part he would not relinquish the use of mercury, yet it seems doubtful whether drugs have

played any important part in the recovery of the successful cases.

Organotherapy.—It was Gull who, in 1873, gave the first clinical description of myxedema, and in his brief and striking paper with remarkable insight he recognized its affinity with cretinism. But Ord made an elaborate investigation, both pathological and clinical, of several cases and described the atrophic condition of the thyroid gland. And then came a wonderful series of researches. Reverdin and Kocher showed that the outcome of surgical removal of the thyroid for various diseases was the unlooked for cachexia strumapriva. Horsley proved that myxedema could be experimentally produced in monkeys by removal of the healthy thyroid. The various attempts to ingraft the thyroid failed from absorption, but presently George Murray proved that hypodermic injections of extract of fresh thyroid were followed by subsidence of the symptoms of myxedema, and finally Mackenzie and Fox showed that the gland could be equally advantageously administered when taken from the mouth. The analyses of Hutchison and others will probably pave the way to a still further simplification by indicating which are the really efficient constituents of the gland material, and some of the alternative effects in diseases other than myxedema may perhaps be explained by the unexpected organic combination of iodine which is found to be present in this gland. The relation to exophthalmic goiter, though not yet satisfactorily worked out, is clear enough to show where true lines of fruitful investigation will almost certainly lie. The investigations of Schäfer and Oliver on the suprarenal body have revealed to us the existence of an internal secretion concerned apparently in maintaining the tone of muscular tissues generally, and especially of those of the vessel walls. And although they have not yielded a cure for Addison's disease they appear to have given us a hemostatic agent of considerable local potency.

How Advance may be made in the Future.—Hitherto the solid basis of established fact has afforded a foothold, though there have been many gaps in our knowledge, but it would be interesting to forecast a few of the probable directions in which research in the forthcoming generation is pretty certain to add to the common stores. With regard to nervous diseases, it seems almost certain that some of the acute types will be brought still more into line with the specific fevers. Anterior poliomyelitis, for example, which occasionally affects two or three members of a family almost simultaneously, and which shows some striking relationships to the exanthemata, will almost certainly prove to be an acute infective disease. The nervous sequelæ and complications of the exanthemata are a mine of clinical wealth and suggestion. For they point not only to disseminated foci of cerebral and spinal hyperemia and extravasation, but also to later changes at first insidious but sometimes far-reaching, dependent on the dissemination of the toxic products of bacillary growth. It may well be that more developed clinical observation may elicit that in the long latent period which we have assumed to exist between an infective disease and its sequelæ there has been a real continuity of morbid process translatably by signs and symptoms which one day will be obvious enough. If locomotor ataxia, for instance, be, as is believed, the remote outcome of specific disease, it will be strange indeed if the latent period does not reveal some intermediate clinical and pathological changes. The great group of peripheral neuritis, toward the elucidation of which the profession is preeminently indebted to the Manchester School (and notably so within the last year) is indeed a meeting place for many etiological factors, but it is especially suggestive as showing the parallel effects produced by toxins which are the outcome of bacillary activity, and by inorganic and organic material introduced by way of the alimentary tract, and perhaps by poisonous products elaborated in the body itself by faulty metabolism.

With respect to the therapeutics of these diseases, the elucidation of their natural history has unquestionably done a great deal by teaching us what cause to remove, and so prevent the further extension of the malady, even in some cases up to a fatal issue. Still it must be confessed that some members of the group show a singular tenacity in going through a certain evolution, even when the peccant cause has been removed. This may seem a disparagement of my original thesis, but knowledge is always justified, and it is something to be able to say that, although remedies have not hitherto materially modified the process, yet that the cause having been removed we are tolerably certain that, provided there is no extension to the medullary centers, the cycle will come to an end, and that recovery will ultimately be complete. Further elucidation may yet show a definite method of shortening the morbid process. But if the more complete knowledge of the natural history of these and other obscure nervous diseases does not in the immediate future pave the way to definite antidotes for them it will at least save us from many a blunder. We shall learn to leave for a time the morbid process severely alone and to concentrate our therapeutic efforts on food and on the improvement of the general metabolism of the patient.

Can there be any reasonable doubt that we are on the eve of a fuller elucidation of cancer, and that when the history of the organism which we suspect to be behind it has been learned, then the fragmentary and isolated pieces of knowledge which have been painfully and slowly acquired during past generations will slip into their proper places like the blocks in the puzzle of a child? But if the history of previous discoveries in our science goes for anything, this, again, will be an instance of the convergence of work of experimental pathology, biology and chemistry, and of clinical medicine and surgery in their widest connotations.

(To be Continued.)

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Stated Meeting, Held May 24, 1902.

The President, William B. Coley, M.D., in the Chair.

THE scientific business of the evening was opened by the reading of a paper by Dr. Joseph A. Kennefick, on The Development of Pus in the Accessory Sinuses of the Nose.

Acute Empyema of Cranial Sinuses.—These affections of cranial sinuses are, in Dr. Kennefick's opinion, increasing in frequency. More and more is it coming to be realized that when in the midst of infectious diseases symptoms of severe headache and neuralgia develop, these painful conditions not infrequently point to the development of a collection of pus in one of the sinuses in connection with the nose. There is, however, a very general ignorance even among medical men with regard to the anatomy normal and pathological of the cranial sinuses, and a corresponding lack of knowledge with regard to the symptomatology of sinus affections. These affections may easily become chronic from neglect, and conditions then develop that are extremely difficult of cure and very obstinate even to remedies affording relief. As a rule the practitioner must learn that a persistent headache yielding only to anodyne drugs when given in large quantities and returning very soon, needs careful examination to discover if possible whether there be a sinus complication.

Anatomy of Cranial Sinuses.—The accessory sinuses of the nose are ventilated air spaces in the bones of the face and head. The principal sinuses are the maxillary, the frontal and the ethmoid. The maxillary sinuses occur in the bones of the upper jaws; they have a direct connection with the nose, but as this connection enters near the top of the sinus it is very well situated for ventilation, though not well calculated to provide good drainage. The entrance to the maxillary sinus is found in the middle meatus of the nose. The cavity in the superior maxillary bone does not exist at birth but develops later; it is hollowed out by a process of osteoclasm. The roof of the maxillary sinus is formed by the floor of the orbit. The internal boundary consists of the thin plate of the nasal bone; this is easily punctured and hence the diagnosis of pus in the antrum and drainage through the nasal cavity is not very difficult. If, after this puncture is made, the nose is thoroughly washed out and pus is found to collect again almost immediately, then the antrum almost surely holds pus. If the middle turbinate bone is swollen it blocks up the usual opening from the antrum into the nose and so prevents drainage. It is possible to bring relief in these cases by reducing the congestion of the turbinate body.

Anatomy and Pathology of the Frontal Sinus.—The frontal sinuses are hollows in the frontal bone. They may be either large or small, or may, as demonstrated by dissections, be entirely absent. At times a canal exists between the right and left frontal sinus and not infrequently the sinuses consist not of two cavities, but of a number of cells joined together. The inner boundary of the frontal sinus consists of the inner table of the skull, and this is often very thin so that but a slight partition separates the sinus from the interior of the skull. The position of the frontal sinus makes it very favorable for drainage which takes place through the nose. When a purulent condition exists in the frontal sinus the gravitation of pus through the nose may lead to an infection of the maxillary sinus. On the other hand, occasionally the maxillary sinus proves the source of infection for the cavities in the frontal bone, so that purulent affections of these cavities often occur together.

The Ethmoid Sinuses.—The anterior cells of the ethmoid bone are in connection with the nose, and though it does not often happen they may become infected during the course of infectious diseases. The cells in the ethmoid bone vary in size and number and it is not always easy to judge of their exact position with regard to the nasal cavity.

Etiology of Acute Sinusitis.—Purulent affections of the sinuses may occur during the course of any acute infectious disease. They have been much more frequent of late years, because of the prevalence of influenza in epidemic form and its yearly recurrence. At times local conditions in the nose may be the cause of the development of pus. Carious teeth may lead to the development of pus in the maxillary sinuses. This occurs when pus sacs develop at the root of teeth and the contents instead of finding their way outward along the tooth itself or through the jaw, press upward and erode the lower wall of the antrum. Once a single sinus becomes infected the infection of others may occur rather easily if proper precautions are not taken.

Micro-organisms in Purulent Sinusitis.—A number of micro-organisms have been found to be actively at work in the production of pus in the accessory sinuses of the nose. Weichselbaum of Vienna and B. Fraenkel of Berlin demonstrated the diplococcus pneumoniæ and the bacillus pneumoniæ in the pus, in the antrum and frontal sinus. Of late years the influenza bacillus is the most common cause of purulent conditions in these parts. Practically all the pus micro-organisms have been found here as active factors. Among these the streptococcus and the staphylococcus aureus are the most frequent. The severity of the affection depends partly on the micro-organism at work, but mostly on the condition of the patient at the time of the infection and the anatomical conditions that prove favorable or unfavorable to the development of the affection. The diagnosis of these conditions is not very difficult if the nose is only examined carefully and if the hyperemia which exists in the nose is overcome by the use of proper astringent remedies. The history of the case is often of great service to the diagnosis. The patients usually tell of having had a very bad cold. This has been followed by great depression, malaise, pains in the head and loss of sleep. There is usually considerable nasal discharge consisting of pus and blood, though at times this is not as profuse as might be expected. Not infrequently there is complaint of pain at the back of the eye. Neuralgia is a common symptom and there is tenderness in the soft tissues over the affected sinuses. When the congested tissues of the nose are caused to shrink by means of cocaine the exit of pus from the sinuses can often be seen. Transillumination promised some years ago to be very useful in the detection of the pus in the accessory sinuses of the nose. Further use of this method of investigation, however, has shown that so many circumstances arise to modify the passage of light that this method can be used only as a confirmatory symptom.

Localizing Symptoms.—When the antrum alone is affected the neuralgia is apt to take the form of a faceache that may be attributed to a bad tooth. When the frontal sinus is affected, there is often supra-orbital neuralgia. At times the skin is distinctly reddened over the affected area. Even when there is no reddening of the superficial tissues there will nearly always be tenderness over the affected sinus.

Treatment of Pus in the Accessory Sinuses.—The indication in these affections is for drainage and surgical cleanliness. The purulent secretion, as it appears in the nose, must be frequently removed by warm alkaline antiseptic solutions. The toxins that find their way into the system by absorption from the mucus lined cavities must be eliminated by means of the skin and the alimentary canal. The irritation of the purulent fluid in the nose frequently causes a condition of persistent hyperemia in the turbinate bodies, and this adds to the difficulty of drainage from the sinuses. By applications of cocaine and suprarenal extract, hyperemia of the turbinate bodies should be relieved and drainage favored. If the anterior end of the turbinate body proves obstinate in its tendencies to recurrent hyperemia, then it may be removed. As a rule no operation is needed in the treatment of these sinus affections, if only the natural means of drainage are properly encouraged.

Twelve Cases with Recovery.—Dr. Kennefick has had twelve cases of purulent collections in the accessory sinuses during the past winter. All of them had been under the care of general practitioners before coming to him for treatment, and in only two of the cases was the real nature of the affection recognized. The first case had a very characteristic history: the patient had suffered from a very severe attack of grip, in which the nasal discharge was so profuse that it proved unbearable. It was checked by plugging the nostrils. Shortly after an intense headache with neuralgia developed. The skin over the frontal and maxillary sinuses became very tender, tense and red. Morphine failed utterly to quell the pain and for three days the

patient had no relief and no sleep. As soon as the tissues of the nose were caused to shrink by means of cocaine and the openings in the sinuses were made free to discharge some of the purulent material, relief was at once afforded and the patient slept for six hours. By keeping the nose in proper condition and by the removal of the pus promptly when it began to accumulate, so as to prevent irritation of the nasal tissues that would increase the hyperemia of the turbinate bodies and interfere with drainage, the patient continued to improve. No further operative interference was required, and the patient went on to make a complete recovery at the end of some weeks.

Frequency and Danger of Sinus Complications.—Dr. Howard Lilienthal said that he has seen a number of sinus complications in recent years. Theoretically, at least, the degree of danger would seem to depend on the kind of infection that has taken place. The ordinary pus cocci, or the pneumococcus can probably be left to nature's care, but the streptococcus would be more apt to cause serious trouble and require prompt evacuation. A bacterial examination of the pus, then, in an early stage of the disease seems very desirable and would make clear the prognosis of the case. With a virulent streptococcus present in these cases it will not be surprising if considerable tenderness and infiltration of the soft tissues would develop; even erysipelas will occur in some cases.

Dr. Kennefick said in reply to a question that he had once seen erysipelas develop in the facial tissues of a patient suffering from a purulent sinus affection. Its origin had been traced to a streptococcus infection of the superior maxillary sinus. Streptococcus infections of the antrum are more frequent than of other sinuses, and Weichselbaum of Vienna insists that erysipelas takes its rise from the presence of streptococcus within the antrum much more frequently than has been thought. There does not seem to be, however, materially greater danger in the streptococcus than in the staphylococcus infection of the sinus. Streptococcus infections, in Dr. Kennefick's experience, have not run an especially acute course and nature with the aid of proper drainage through the nose has proven amply able to take care of them.

Posterior Wall of Frontal Sinus Absent.—Dr. Charles Gibson recalled a case reported to the Harvard Medical Society some two years ago in which the posterior wall of the frontal sinus was formed by the dura, the inner plate of the frontal bone being absent. In this case infection extended through the membranes of the brain and set up a severe meningitis, to which the patient succumbed. Dr. Gibson considers that this anomaly may be more frequent than has been thought and that the possibility of its occurrence should always be kept before the mind of the surgeon when operating upon the frontal sinus. The inner table of the frontal bone, when present, is often extremely thin, and it is an easy matter to penetrate it if the surgeon is careless in his manipulations.

Function of the Frontal Sinus.—Dr. Kennefick said that the principal function of the sinus in the frontal bone seems to be to provide a resonator for the human voice; many of the best qualities of the voice come from the added effect of this air chamber. Besides, of course, the presence of the cavity gives lightness to the skull. Its functions, whatever they are, are not important for life or comfort; when the sinus is obliterated there is no apparent difference in the patient's feelings. When pus occurs in the frontal sinus and it becomes necessary to open it, the cavity is according to the present custom of specialists packed thoroughly with gauze and allowed to heal from the bottom. At times there remains a rather unsightly scar with a depression of the skin at the point where the incision has been made. For the correction of this paraffin is injected beneath the skin and has proved an excellent means of raising it up to the normal level, thus getting rid of the unsightly depression.

In answer to a question Dr. Kennefick said that the function of the sinuses with regard to the human voice seems to be to aid in placing it. The auxiliaries thus provided give those special qualities to the voice of orators and actors that enable them to use their voices to the best effect.

Pus in the Sphenoidal Sinus.—Dr. Kennefick reported the case of a physician who suffered from a severe attack of grippe last January. Afterward there was almost unbearable headache accompanied by mental symptoms. During the summer the physician was better, but in the autumn many of the old symptoms returned. Clumps of pus were coughed up, and after careful examination of all the possibilities of the case it was decided that the sphenoidal sinus was probably affected. The middle turbinate body was removed and with a Bryan gouge the sphenoid cells were opened up. An amount of cheesy and stinking pus was evacuated and the sinus thoroughly washed out. The patient continued to be delirious for some days. An opening was then made beneath the eye and all the sphenoidal cells were cleared out. The patient was delirious for some time after, but was gradually restored to health and has been able to take up his practice once more.

Portable Operating Table.—Dr. Howard Lilienthal presented a portable operating table. It is not as light as the tables on the market now but it enables the operator to obtain any position including the kidney position, and can readily be carried from one place to another. The head may be raised or lowered so as to put the neck tissues on the stretch for the performance of operations in the cervical region. The table weighs altogether only thirty-seven pounds and the parts are so arranged that there is absolutely no danger of its failing to bear any weight; it has been tested up to 400 pounds, and, besides, it is so made as to wear well.

Dr. Coley thinks that this table is an eminently practical profitable table and the best of its kind that he has seen. The ease with which the Trendlenburg and kidney positions can be obtained and the movability of the head rest, make it especially suitable for operations of any kind.

Dr. J. B. Walker said that the table represented some of the best modern ideas and would undoubtedly prove an important addition to the surgeon's armamentarium and make it possible for him to do at short notice in the dwellings of patients operations about which there has been hesitation.

Supposed Carcinoma of Stomach.—Dr. Gibson then presented the details of a case of supposed carcinoma of the stomach. All the symptoms pointed to the existence of a malignant neoplasm of the gastric wall. Gastric analyses showed the absence of hydrochloric acid and the presence of distinct amounts of lactic acid. Repeated examinations were made, always with the same result. A large movable tumor could be felt in the region of the stomach, and all the conditions justified an exploratory operation. The patient was not much emaciated, and her age, thirty-three, justified the hope that if a carcinoma were present a radical operation might be successfully performed. After laparotomy, the only gastric condition found was a dilatation of the stomach of no considerable extent, but evidently sufficient to delay the emptying of the viscus and the consequent disturbance of secretion that had been noted. Two floating kidneys were found and

there was a distended gall bladder. Here and there in the pancreas hard spots could be detected by palpation, and the general condition seemed to be due to a combination of all of these complications.

Cancer in Earlier Years.—Dr. William B. Coley said that age can not be considered an important factor in deciding as to the presence or absence of a carcinoma. Youth is no bar to neoplastic degeneration of malignant character. He has recently operated upon cancer in the breast of a woman of thirty-five, the first symptoms of which had been noted two years before when the woman was scarcely thirty-three. He has recently seen a cancer of the breast in a woman of thirty-two who had suffered two years before from a miscarriage and had since developed an indurated condition of the breast. This was thought to be inflammatory in origin. After microscopic examination it proved, however, to be carcinomatous. Dr. Coley has recently seen another case, in which though the patient was only thirty-two, the axillary glands were already involved as the result of the presence of a carcinoma in the breast.

Dr. Gibson said that there is no doubt that carcinoma is occurring at an earlier age than before. The statistics of Board of Health, of life insurance companies and hospitals, showing the deaths from carcinoma by decade all confirm this opinion. Statistics that show the social conditions of patients suffering from malignant disease also seem to point out that it is becoming more frequent among the better classes. Dr. Gibson has recently seen a case of carcinoma of the stomach in a patient under thirty-five years and carcinoma of the cecum in a patient only thirty-three years of age.

Dr. Coley said that he had recently seen two cases of carcinoma of the vagina under twenty-five years. The tumors were inoperably large and one of them had so infiltrated surrounding tissues as to forbid all hope of relief by surgical intervention.

Finney's Gastroduodenostomy.—Dr. Howard Lilienthal said that, persuaded by Dr. Finney's excellent presentation of the subject at a recent meeting of the Harvard Medical Society, he had tried gastroduodenostomy, according to Finney's method, and had found it eminently satisfactory. The patient had suffered very severely from gastric symptoms which proved utterly obstinate to all ordinary treatment. Finally persistent vomiting developed and emaciation became so pronounced as to make operative interference absolutely necessary. The pylorus was found to present a very rigid, almost cartilaginous feeling, but notwithstanding this, after the adhesions were freed, the operation did not prove difficult. The patient recovered without incident and has done very well since. All the stomach symptoms have disappeared and a marked gain of weight is recorded.

Success with Coley's Fluid.—Recently Dr. Lilienthal has had under his care a man of forty-three years who presented a tumor on the sixth rib of the left side. This crackled on palpation and was thought to be due either to a cold abscess, or to syphilis. When opened serum and blood were found in a cyst of the rib. Another cyst occurred on the rib in another part, and resection showed that the pleura also was involved and that all of the tumor could not be removed. Microscopic examination of the specimens showed that the tumor was a sarcoma of the pigmented variety and of the worst possible prognosis in man. The tumor seemed to be primary, though pigmented sarcomas of this region are rare and are usually secondary to sarcoma of some pigmented tissue. As the case seemed hopeless injections of Coley's fluid were tried; the general condition at once began to improve, although the man had been in a severe state of cachexia. The tumors began to disappear and now for months there have been practically no signs of them. The patient may not be cured and there may be a recurrence later, but certainly the use of the mixed toxins seems to have afforded a wonderful measure of relief, practically curative for the time being. Dr. Lilienthal said in conclusion that if he should have a case of malignant inoperable tumor himself he would certainly want Coley's fluid used, being sure that it would afford one more chance for prolongation of life and relief from annoying symptoms.

Large Omental Hernia.—Dr. John B. Walker reported a case in which operation was done for the radical relief of a large omental hernia in a patient weighing over 300 pounds. The heart was too weak to justify the use of a general anesthetic, and the operation was done under local anesthesia. Dr. Walker gave ten minims of Magendie's solution before the operation, and used Schleich's No. 2 solution for the production of local anesthesia. An incision ten or twelve inches in length was made in the skin and the bleeding points were clamped. When the iliohypogastric nerve was reached an injection of some drops of the solution was made into the trunk of the nerve. There was some complaint when the sac was being tied, but otherwise the patient suffered very little annoyance. Altogether the operation lasted about forty-five minutes and was very satisfactory considering the risks that would have been run by general anesthesia.

Physician as Patient and Local Anesthesia.—Dr. William B. Coley said that he had a physician friend who was operated on for the radical cure of hernia at Johns Hopkins under a local anesthetic, and who said that he would not want to undergo the ordeal again. The physical pain is only very slight, but the mental strain is so great as to render the patient extremely nervous not only at the time but for several days afterwards.

Dr. Waterman said that the operations for hydrocele and varicocele may very well be done under local anesthesia. Patients make no complaint and say very freely afterwards that they have felt no pain during the operation. Many patients who will object to operation if it involves the necessity for a general anesthetic are easily persuaded to allow operation under local anesthesia. Very little cocaine is needed and a solution of one per cent., or one of Schleich's preparations, will enable the surgeon to do careful and very satisfactory work without causing the patient much annoyance. The field for the use of local anesthesia is larger than has been imagined, and the general practitioner particularly will come to realize that many small operations can, with its assistance, be done without the necessity for an assistant to help him in the work.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Stated Meeting, Held June 4, 1902.

Lucius W. Hotchkiss, M.D., in the Chair.

Report of a Case of Cholecystectomy and Presentation of Specimens.—Dr. John F. Erdmann reported the case of a female, sixty years of age, who came under his observation May 22 with the following history. During the past five or six years she had had a sense of uneasiness in the right hypochondrium and epigastric region. She was constipated, but had no clay-colored stools. She had never been jaundiced. There was some pain in the back, in the lumbar region, extending to the right scapula and occasionally transmitted beyond. She had had frequent attacks during the past five years which were so severe as to require the use of morphine; two days after the injection of

morphine the pain would subside. On one or two occasions she had vomited. The patient was well nourished, with a tendency to corpulence. Upon examination the gall-bladder was found to be exceedingly sensitive but Dr. Erdmann thought he could make out a small mass the size of a mandarin. From the history given, and the result of his examination, the case was supposed to be one of cholelithiasis, and so, on May 31, he operated under ether and gas anesthesia. Palpation revealed a rather symmetrical mass, superimposed on which was a tongue-shaped mass; this was diagnosed as Ridell's lobe over an enlargement of the gall-bladder. The exposure was made through the right rectus, coming down upon the gall-bladder and Ridell's lobe. The patient being in good condition, and cholecystectomy being indicated because the gall-bladder was filled with stones, he continued the operation, meeting with some difficulty in separating the peritoneum from the muscular structure, and also the gall-bladder from the peritoneal coat of the liver. A ligature was passed around, and the gall-bladder excised. Extending from the foramen of Winslow to the left lobe of the liver were a number of stones in the ducts, about twenty-five in number. The cystic duct was removed, the cut in the common duct being sewed up with the exception of an opening for the insertion of a tube. The patient's temperature was at that time 100.2° in the rectum, and her pulse 85. No bile had been discharged from the wound since the third day.

Valid Objections to so-called Christian Science.—The Rev. Andrew F. Underhill, Rector of St. John's Church, Yonkers, read this, the paper of the evening. In endeavoring to define it, he said that, in a more or less definite way, we learned that Christian Science was a philosophy holding entirely to the subjective theory of the universe; that it was a religion whose creeds exalt the importance and all-sufficiency of self, making the subjective Ego the center of all phenomena, equal with and not to be differentiated from God, yet claiming to be founded in the spirit and true doctrine of Jesus Christ; and that it was also a society of professional healers, who rely solely on the force of human psychic power, subjectively exerted, and untranslated into bodily or mechanical action.

Is Christian Science Christian?—In answer to this question, he said that, according to the chief apostle of this cult, the central truth around which the whole system revolved was the principle that the only real thing which exists in the whole universe is mind or spirit. Everything objective was an illusion. Matter was nowhere really present as an actual substance. Material phenomena had no being save as projections of the mind. There was no world outside of consciousness. Everything we saw was merely the product of our thought, and external agencies were imaginary, not real. The earth, as it was known to us, dies, and actually passes away when we shuffle off this mortal coil; for it never has been save as a conception mirrored in the mind; hence, things as concrete were unthinkable. The properties of matter were non-existent. Weight, heat, cold, affinity, attraction and repulsion, length and breadth, size and bulk, quality and quantity, as attributes of a created substance external to consciousness, were an impossibility. Pleasure and pain, then, as the result of anything exterior to the mind, were simply not. There was no such thing as physical disease, defect, or shortcoming. Imperfection was contrary to reason. It was defective thought on our part that made this illusory image. Everything was perfect; nothing was wrong or out of gear—we simply imagined it so. Sin, actively considered, was defective thought—not a moral and physical action or state, limited in time and space. It was a mere phantasma, that could be dissipated by simply conceiving it to be non-existent. Now, all this system was as far from the ideas which underlie the teachings of Jesus as was the orbit of the earth from the furthest fixed star. It only accounted for half of the world, for half of man, and involved itself in every contradiction and absurdity. Furthermore, the belief in it was a bar to all progress, to all incentive for physical and energetic action. It superinduced a lazy and contented calm which allowed the world and all things in it to drift. Again, in the realm of conduct and ethics, the practice of Christian Scientists did not coincide with the teachings of the Master. According to their strict theory, no physical care was to be given to the sick nor was sympathy, as we understand it, to be offered to the afflicted. Even the knowledge of disagreeable things was to be avoided. The sufferer was to be told that he did not suffer, and not for a moment to confess to himself that he could suffer. What he took for bodily suffering was nothing but mental error. We, who believed in the love and power of the Son of God, were taught that no man is all sufficient to himself; that the finite mind cannot contain the infinite God; that material things are realities. Further, on the doctrinal side, Christian Science was in direct antagonism with nearly all the statements of the Apostles' Creed. In view of these facts, what was there in Christian Science that was even remotely Christian?

Is Christian Science Scientific?—The definition of science was: "Knowledge gained by systematic observation, experiment and reason; knowledge, co-ordinated, arranged, and systematized." First of all, the foundation of this so-called science was a sweeping assumption, not a deduction from facts gathered and systematized; and it was an assumption that appeared on the face of it to be contrary to the common experience and universal belief of mankind. Its basic doctrine, that the universe is entirely subjective, that mind is its only constituent, and that there is no such thing as matter objectively considered, the Christian Scientists themselves did not attempt to justify, except by assuming it, and by pointing to the fact of certain cures accomplished without the aid of drugs. Then, by a curious fallacy of reasoning, they proceeded to teach that because some cases of disease were perceived to get well without the use of drugs, therefore, all cases might be thus cured, since the reality of mind and the unreality of matter were demonstrated in the instances where such recoveries had taken place. But they involved themselves in a very curious inconsistency when, by denying the efficacy of medicines to heal, they could not escape the fact that in certain doses drugs which are poisonous, in every instance, without exception, if partaken of, whether consciously or unconsciously, would surely kill. Again, in proof of their theories, they were not willing to submit to any test of their science which would be scientific and acceptable to all men. They have apprehended, in a dim way, a certain part of the truth; but by assuming that they had apprehended it all they were led into the gravest and most serious error. To conceive that all perceptions and objective phenomena were the creations and products of mind was to assume that consciousness and idealization were states existing prior in time to the objective phenomena supposed to surround us. If mind in the world and in the human being were all, then it must have within it, ready-made, the ideal conception of each of the so-called material forms of nature from the beginning. Mind, then, within itself, must be the perfect embodiment of all facts and all possibilities of the universe. It precedes all things that seem; and

from it all things are projected. It apprehends them subjectively before it creates them objectively. The facts we were able to glean showed us that the very reverse of this was true. Ideas do not appear in our consciousness until extraneous things have produced upon us sensations which, in their turn, give rise to the intellectual conception of the objects that produce them. The growth of perception in infants showed that the development of mind takes place through sensations from without—that the intellectual faculties are not the force from which all things have their being, but that they are the products of growth, produced to a large extent by environment. The point where Christian Science had duped its votaries was this: It had confused the category of diseases that are present through an emotional or nerve-disturbing cause with the category of diseases that are present through external causes; and it had placed all manifestations of pain and sickness under the former. The objection to the Christian Science practitioner was, that he is uneducated in the laws of physiology, pathology, and the diagnosis of disease. He refused to gather, compare, systematize, and analyze facts, or to deduce any system of knowledge from them. He had the same diagnosis and the same remedy for all ailments, no matter what their source or present development; and, therefore, his pseudo-science was based on the deification of ignorance. The whole progress of the world had been accomplished by patient and unceasing endeavor, by study and comparison, and sifting, and selecting. When the world had departed from this method the result had always been disaster, suffering and anguish. Sober judgment in all the affairs of life leads to contentment and happiness; while unbridled emotion and imagination, unrestrained by the appreciation of realities, leads to the very opposite. Christian Science was the product of a misdirected emotional state. It was not even remotely scientific, and it was devoid of common sense.

Its Results—Ethical and Moral.—The speaker said he had endeavored to show that Christian Science, in its intrinsic aspects, as a religion and philosophy, was neither Christian nor scientific, and its axioms, postulates, and propositions were faults. He would next call attention to the modes of its outward manifestation; compare with them the facts of our religion and modern science which are opposed to it, and indicate the disaster and unhappiness it would cause if it should become generally current and be allowed to prevail. Within the past few years it had increased more rapidly than any other organization which pretends to teach religion or advocate any particular method of healing. Its large pecuniary holdings were evidence of its determination to stay. In 1898, it had 221 churches; in 1901, 600, with 12,000 ministers and healers, and 100,000 adherents. Its manifestation, as a religion alone, was perhaps not so serious in its probability of harm, for, divorced from the universal healing power of mind, it had but small foundation to stand upon. The fact remained that a large proportion of its adherents had become so by reason of their belief that they had been cured of some bodily ill, yet it was accomplishing a good deal of evil in the moral and spiritual sphere. While claiming to be the religion of Jesus, it had asserted that its principles were discovered and revealed by a woman but thirty-five years ago. By teaching individuals that man cannot depart from holiness, and that when he sins he must assert that there is no such thing as sin, it was barring the way of all moral progress; for, it was only by recognizing present shortcomings, defects, and needs that a better state of morals was obtained in the future. For the man who was entirely satisfied with himself and his condition there was absolutely no hope of moral improvement. The effect of Christian Science on morals, in general, was, therefore, pernicious, but its evil influence was most marked on the young, by teaching them to deny the evidences of the physical senses, which were given by God to convey impressions to the mind. This method fostered from the beginning the fundamentals of hypocrisy and deceit. Christian Science was only a religion for the well-to-do; it had no message for the poor and afflicted, no care for the sick, except to tell them they do not suffer; it had founded no charitable institutions; it maintained no free hospitals, but demanded and wrested payment of the "almighty dollar" for all the boons its priests and priestesses might confer; it was shamelessly opposed to all Christian altruism, and struck down the divine principles of pity, mercy and unselfishness.

The Results, Physical and Hygienic.—It was well to understand how well qualified the professors of this cult were for practice in the cure of disease. A woman gave an account in the New York Herald of how she took a course of eight lectures from a well-known exponent of this "science." The series was attended by forty students, each of whom received a diploma after having paid one hundred dollars. The writer said that, at the end of the eight lessons, she knew no more than at the beginning! How did this compare with the years of study that a reputable physician must give before he was deemed competent to begin to practise? It was hardly possible for us, who had lived in this enlightened age, to realize what the giving up of the benefits we had attained through the progress of modern science, would mean. The substitution of the processes of Christian Science healing would throw us back to the conditions which exist among the lowest and most depraved of savage tribes, whose method of treating disease is exactly similar in theory to that of the modern fanatics. The practice of exorcism was common to all primitive peoples. The establishment of quarantine, efficient sewage systems, sanitary plumbing, etc., had enormously decreased the death rate. The plague, cholera, typhus, and yellow fever, diphtheria, typhoid, consumption and other maladies were no longer the awful menaces to life that they formerly were.

One might continue at great length to show all that had been gained through the agency of modern science. Could we afford to allow the profession of medicine to be assailed, and to have its means of well-doing threatened when we know that it should be protected for the sake of all it had procured for humanity? And could we continue to allow the health of the community to be menaced by the ridiculous incompetency which would overthrow these benefactors? This insufferable movement, the speaker said, in its manifestations as a healing art, or profession, was a menace to the community; it was a menace to all, and the same law which maintained quarantine and municipal health precautions and cleanliness should put down with ruthless hand this pseudo "science" which, under a religious guise, had committed so many shocking murders. We could, perhaps, pass over the fact that a man is acting the part of a delusionist, if the delusion concerns no one but himself; but it became a more serious matter when his aberration of mind affected the lives and happiness of others in the community. When he subjected innocent and defenseless children to the horrors of neglect and to the miseries of pain and sickness, without an attempt at intelligent alleviation, the time for pity had passed; we should hold him up to the scorn and execration of all who think aright, and visit him with the penalty his wickedness deserved.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held May 15, 1902.

The President, Robert F. Weir, M.D., in the Chair.

THE scientific business of the evening consisted of a symposium on

VARIOUS FORMS OF VERTIGO.

Stomach Vertigo.—The first paper was read by Dr. Charles Sumner Fischer, who described stomach vertigo as it was originally outlined by Professor Trousseau of Paris. The symptoms given by Trousseau in his classical description are those to which every writer after him must refer in order to appreciate just what Trousseau intended. His patients were taken with a whirling sensation in the head, frequently saw things revolving about them and often had a vision of a large black wheel constantly revolving. These vertiginous sensations were accompanied by a sense of great fear, as of some impending disaster. There was no loss of consciousness and no true illusion. Patients realized that the things seen were not actually existing, but were only due to their own pathological condition. These true vertigo symptoms were accompanied by pain in the epigastrium in some cases, which occasionally radiated into the back. Not infrequently there was a sense of burning at the pit of the stomach and an uncomfortable feeling of pressure over the stomach region. Usually there was constipation, but at times diarrhea was found. Nearly always there was a sensation of nausea following an attack. The symptoms might come on after a heavy meal, but sometimes they occurred on an empty stomach.

Pseudo-stomach Vertigo.—While the classical description of stomach vertigo goes back to Trousseau's time, many cases have been described to which the name stomach vertigo has been given without due reason. Any vertiginous sensations occurring in a patient suffering from indigestion are apt to be attributed to gastric vertigo. The important points of Trousseau's symptom complex are the sudden onset, the intense dizziness and the feeling of impending disaster. Sometimes these symptoms occurred even in Trousseau's experience in persons in whom there was no actual gastric disease. In his time, too, it must be remembered that gastric disease was a much more comprehensive term than at present and included all subjective sensations in the stomach region, while in these later days, objective symptoms are required for the diagnosis.

Chronic Gastritis and Vertigo.—It is extremely interesting to discuss what the true significance of Trousseau's symptom complex may be in the light of our present knowledge of gastric disease. There are some authorities who say that all chronic stomach trouble is liable to complication by vertigo. Most of the gastric specialists insist that it is only when there are secretory disturbances that vertigo becomes prominent. Boas, however, says that vertigo always occurs with disturbances of the gastric motility rather than secretion. Some good authorities say that gastric vertigo is quite frequent, others find it rather uncommon, but in recent years there is a growing feeling that vertigo even in stomach cases is always associated with some eye or ear lesions, and these will be found if looked for with sufficient care.

Mechanism of Stomach Vertigo.—In general it is usually said that stomach vertigo is due to reflexes carried through the vagus nerve. It is not known, however, how these reflexes produce their effects. It is thought that they may occur by a nervous impulse that reaches the labyrinth. Leube saw a case in which vertigo always followed a rectal examination, or even pressure upon the epigastrium. Many stomach specialists have seen vertigo follow the introduction of a stomach tube. There are said to be nerves from the lower cervical ganglia, which supply certain sympathetic fibers to the vertebral arteries. These arteries by their branches supply the labyrinth with blood.

Auto-intoxication and Vertigo.—Professor Bouchard of Paris introduced the suggestive idea of auto-intoxication into medicine. It is possible that vertigo in gastric affections may be due to the absorption of toxic products from the digestive tract. It is evident that there is no possibility of agreement as to whether secretory or motor factors influence the more in the production of vertigo. Hypochlorhydria and hyperchlorhydria have both been found in cases of well marked vertigo thought to be due to the stomach. In some cases with considerable motor disturbance, no vertigo has been seen, while in some cases where but slight interference with gastric motility existed a notable degree of vertigo has occurred. There seems always to be an additional element in the etiology of the affection besides the gastric disturbance present.

Neurotic Factors in Vertigo.—Trousseau admits that in his cases the patients improved under the administration of a general tonic. A study of his cases shows that all of them contained neurotic elements. Vertigo usually occurred about the time that other neurotic symptoms became prominent in the case. In some cases there had even been some tendency to vertigo before gastric symptoms were noted. It is well known how readily a neurotic condition may lead to atonic gastritis with disturbance of the secretions and of the motility of the stomach and hence with the production of auto-intoxication. It seems probable therefore that when so-called stomach vertigo occurs it is rather due to a combination of all these factors and not to any one of them. In Trousseau's cases attacks were sometimes precipitated when patients looked at a revolving object, so that autosuggestion would seem to play a rôle. The occurrence of nausea and vomiting with eructations does not necessarily prove the direct influence on the stomach. There is rather a vicious circle of pathological conditions which culminates in vertigo.

Other Nervous Symptoms.—Vertigo would seem to have been attributed to gastric causes on rather uncertain grounds in the past. It is often associated with other nervous symptoms. Vertigo and agoraphobia are not infrequently found in the same subject. The imperative idea that causes agoraphobia is, however, not at all associated with the stomach or any disturbance of it. If there is any connection between vertigo and gastric disease, this would seem to be due rather to intoxication than to any direct reflex running through the labyrinth. When vertigo occurs it is associated wth any form of a stomach disease and not necessarily with a special type.

Tympanic Vertigo.—Dr. William P. Brandegee said that vertigo is not the only symptom of middle ear disease, but is usually associated with tinnitus aurium and sometimes with some deafness. It is well known that vertigo may occur where there is considerable depression of normal atmospheric pressure as at a great height or where the pressure of the external air is very much increased as in caissons. The vertiginous symptoms in these cases are due to disturbance of the pressure on the drum and interference with the normal circulation. A not infrequent source of tympanic vertigo is a congestion of the Eustachian tube, or hypersecretion of its mucous membrane which interferes with the ventilation of the tympanic cavity. Inflammatory disturbances in the Eustachian tube are easily communicated to the middle ear and this by affecting the laby-

rinth may lead to vertigo. The direct cause of the vertigo is an increase of labyrinthine tension. This increase is due to pressure on the oval window from adhesions of the stapes. The main source of the symptoms is congestion of the tympanic cavity. The prophylaxis against this is frequent inflation through the Eustachian tube, especially by means of the catheter. Sedative applications to the throat and nose and especially to the orifice of the tube, when active hyperemia is in progress, produces relief of symptoms. Strong atomizations should not be used as they may easily increase the condition by adding to the irritation. When the vertigo is very severe and the symptoms acute, the drum may be set at rest by a Blake paper splint. This is especially to be recommended after rupture of the drum, when there are coincident catarrhal conditions. The outer surface of the drumhead may be washed with antiseptic solutions. For this purpose bichloride solution—1 to 8000, or double that strength is better than the milder antiseptic solutions, such as boric acid. It may be necessary, where slight purulent conditions exist and cause tympanic vertigo, to remove the ossicles or curette the walls of the tympanic cavity. The decision as to the extent to which operative interference may be advisable must be left to the surgeon.

Adhesions of Eustachian Tube.—When the walls of the Eustachian tube are adherent, these adhesions must be broken up. For this most otologists use a whalebone bougie introduced through the Eustachian catheter. In Dr. Brandegee's experience, however, Deuel's method, employing electrolysis for the gradual resolution of the adhesions, seems the better way. In general it must be remembered with regard to tympanic vertigo, that there are many forms of the affection, due to many different causes and patients must be treated individually according to the indications of the special cases.

Vertigo in Neurology.—Dr. Pearce Bailey said that vertigo occurs not only in connection with organic diseases of the brain, but also in functional neurotic conditions and even in certain toxemias. Toxic vertigo, due to the use of tea, coffee or tobacco to excess, is well known. The significance of the symptom complex is often missed. Potassium iodide when used in large quantities in susceptible patients, sometimes causes an extreme form of vertigo. The patient may even stagger and the vertigo may be accentuated by all changes of position. The vertigo is due to an idiosyncrasy, but seems to occur especially in those cases which are not syphilitic or in which a former syphilitic process has gone beyond the time, when specific treatment would be of any service.

Neuroses and Vertigo.—In neurasthenia and hysteria, vertigo or dizziness is very frequently complained of, but is hard to demonstrate. The symptom is intensified by excitement, or whenever the patient is allowed to talk much about it. Even at the moment of its existence patients may be able to walk a chalk line, or be able to stand perfectly well with the feet together and eyes closed. At times vertigo, however, is an objective symptom in these cases and may be due to degenerative changes in the blood vessels. Hysterical hemiplegia is liable to be characterized by vertigo. There is a sort of pseudo-Menière's disease, which is badly borne by patients. The giddiness in these cases is intensified by introspection. Most people have certain giddy feelings at times, and these in individuals prone to accentuate all their feelings, become imaginarily severe attacks of vertigo.

Organic Disease in Vertigo.—Vertigo occurs as a symptom of brain disease when there is some interference with the centers of equilibrium in the medulla or cerebellum. The cerebellum, especially, has for one of its focal symptoms vertigo. It is practically impossible, however, to localize the part of the cerebellum in which the lesion exists. There is any number of illustrative cases in the literature in which, despite the most careful diagnosis, surgical intervention has proved that the localization was wrong. Only one symptom is especially reliable in this matter: if deafness occurs on one side, then this represents the lateral localization of the lesion. Other cranial nerves may be affected almost indifferently, some on one side and some on the other, no matter what the position of the lesions.

General Paralysis and Vertigo.—This important disease is increasing very much in metropolitan life in recent years, and it is desirable for the general practitioner to bear in mind that one of its earliest symptoms is apt to be vertigo. The disease rarely begins without this symptom. Commonly the patient complains of giddiness, as well as a certain loss of memory while his friends begin to notice lapses of intelligence as well as of memory. Usually the vertigo of later stages of general paralysis is accompanied by the characteristic apoplectic form attacks of this disease. The vertigo is then due to the progressive degenerative changes in the brain which are found in general paralysis. The differences in the development of this symptom are due to the part of the brain that happens to be primarily affected.

Apoplexy and Vertigo.—Vertigo constitutes one of the most valuable preliminary signs of a stroke of apoplexy. Sometimes, to slight extent, it occurs for months beforehand at irregular intervals. Sometimes for a few days before an impending seizure it constitutes a most distressing symptom. Frequently this gives due warning to the patient of the fact that the stroke is about to occur and at times allows of the employment of proper prophylactic measures to delay the occurrence. At least it furnishes opportunity for the taking of proper precautions with regard to temporal affairs and the necessity for having a companion when on the street.

Brain Syphilis and Vertigo.—Vertigo often precedes the development of the severe symptoms of a syphilitic process in the brain. It may for a long time be the only symptom of the affection and may prove a valuable hint for the institution of proper therapeutic measures. In cases with a syphilitic history the occurrence of dizziness without any other physical condition to account for it should lead to the suspicion of the existence of some syphilitic lesion in the brain. The therapeutic test will decide as to the justice of the suspicion.

Vertigo and Eye Conditions.—Dr. W. B. Marple said that when vertigo occurs in connection with visual disturbances it is practically always due to paresis, or paralysis of the muscles of the eye. This causes the well-known diplopia and the occurrence of two images in the visual field, giving the patient the sensation of unsteadiness, or dizzy feeling, that may be even vertiginous in character. Double vision may occur, however, without vertigo. When the patient is suffering from diplopia he is apt to present himself holding his head in some peculiarly strained position in order to avoid the annoyance of the double vision. Vertigo does not occur so much when the diplopia is very marked, that is, when the visual axes are very widely separated by the muscular disturbance, but on the contrary when they are but little separated. The closing of one eye and the continuance of the vertigo is not a sign that it may not be due to the eyes. If the affected eye be closed alternately with the well one, some judgment as to the visual factor in the case can be obtained. Eye

vertigo is usually not severe, though Dr. Marple has seen it occur to such an extent as to bring on nausea and even vomiting.

Treatment of Eye Vertigo.—Vertigo from the failure of muscle balance should be treated by an exclusion glass and by every other possible means before an operation is suggested. When vertigo occurs in neurotic subjects and every other organ has been thoroughly tested, it will sometimes be found that the correction of even slight errors of refraction will relieve the patient. This correction should be made under a mydriatic, especially in neurasthenic patients. Refraction errors should be corrected before anything is done for muscle conditions that may be detected. Dr. Marple never saw a case in which he judged an operation for the eye conditions causing vertigo to be necessary. The disturbances due to muscles are, in his opinion, overestimated.

Etiology of Stomach Vertigo.—In discussing the papers Dr. Max Einhorn said that vertigo may be due to many causes. Formerly gastric catarrh was a much more comprehensive term than it is at present and many conditions were so described that had no necessary connection with true stomach disease. Dr. Einhorn is confident that at times vertigo is due to gastric conditions. It is but proper to assume this when the correction of a stomach lesion leads to the disappearance or relief of the vertigo. Dr. Einhorn has found that secretory conditions are especially fruitful of vertigo. The hyperacidity of nervous indigestion that may be corrected by means of vichy or some other alkaline remedy is not infrequently directly associated with the vertigo. The alkaline drink then prevents its occurrence. It would seem in this case that the vertigo was not a symptom of auto-intoxication, but a reflex. When there is a deficiency of stomach secretion the presence of rough particles of food resting directly on the mucous membrane of the stomach may cause a reflex vertigo. If sufficient liquid be added to the meals this disappears. Dr. Einhorn has seen certain cases in which the simple prescription of a glass or two of water about an hour after meals caused the disappearance of the vertigo.

True Stomach Vertigo.—Dr. Hayes mentioned the case of a Yale student who nearly fell from a tallyho as the result of an attack of vertigo. His attacks of vertigo were always preceded by a burning sensation at the pit of the stomach and were found to be associated with distinct hyperchlorhydria. As soon as this was relieved by appropriate treatment, the attacks ceased to recur. In chronic stomach conditions relief may be obtained, but as subsequent exacerbations of the stomach trouble are frequent relapses may occur. The direct connection between the gastric pathologic condition and the vertigo in these cases seems undoubted.

External Ear Vertigo.—Dr. J. F. McKernon said that vertigo as a symptom of external auditory affections is not very uncommon. It is well known that collections of cerumen in the external auditory canal may give rise to severe symptoms of dizziness. The presence of foreign bodies within the meatus may also produce a like result. Certain neoplastic growths are associated with vertigo as a prominent symptom. Inflammatory conditions of various kinds may produce a very similar effect. There is especially a membranous inflammatory condition of the canal that has this for a symptom. Exostoses of the bony canal by interfering with the proper ventilation of the external ear may be associated with dizziness. Residual inflammation of the middle ear is quite a frequent cause of vertigo. Certain other diseases in the neighborhood, as for instance, mumps, may be associated reflexly with severe vertiginous symptoms.

Labyrinthine Vertigo.—Dr. Dench said that the most illustrative type of labyrinthine vertigo is seen in syphilis of the labyrinth, whether the affection prove to be of the acquired or hereditary type. Dr. Dench has seen two characteristic cases recently. One occurred in a baseball player who had his primary sore six months ago. He suffered so much from dizzy sensations that he found it impossible to go on with his occupation and feared he would have to give up his position. Inflation failed to relieve the symptoms. He was treated by subcutaneous injections of mercury and by pilocarpine to its limit of tolerance. This patient had no disturbance of hearing. A second case had distinct disturbance of hearing. There was no history of syphilis, though as a prominent syphilographer said, there were symptoms of the disease, which probably ran its course about fifteen years ago. Mercury and pilocarpine were used with success in this case also. Pilocarpine is practically a specific and proves of great service in the vertigo that occurs with mumps also. When disturbance of hearing is associated with vertigo then the pilocarpine relieves this also.

In closing the discussion Dr. Fischer said that he does not favor the idea of auto-intoxication as a cause of vertigo more than reflex nervous influence. It seems probable, however, that there is a group of causes instead of any single cause at work in the production of the vertigo. Dr. Brandegee said that the pilocarpine is of more use in labyrinthine syphilis of the acquired than of the hereditary variety.

CHICAGO ACADEMY OF MEDICINE.

Stated Meeting, June 27, 1902.

Dr. A. E. Baldwin in the Chair.

Glycosuria and Diabetes.—Dr. R. B. Preble, after drawing attention to the impossibility of giving more than the very briefest attention to a few of the clinical phenomena of diabetes mellitus, called attention to the fact that glycosuria and diabetes mellitus were not interchangeable terms. Naunyn distinguishes twenty groups of cases of glycosuria, including something over one hundred separate conditions. Only the alimentary glycosuria is here considered. A person who cannot convert 100 grams of glucose is said to have an alimentary glycosuria, and the lower the converting power of the individual, the greater the pathological degree. A glycosuria of 1 per cent., or one in which more than 5 per cent. of the 100 grams is regained, should be regarded as very suspicious.

After making a diagnosis of diabetes mellitus, determine whether it is of the mild or severe type. Gradually withdraw the carbohydrates from the diet, until none are being taken. If the sugar entirely disappears from the urine the case is of the mild type; if not, of the severe type. If of the mild type, allow in the diet as much carbohydrate as can be converted; if of the severe, allow carbohydrates up to a total sugar excretion of 20 grams per day.

Lastly, Dr. Preble drew attention to the recently discovered adrenal diabetes, *i.e.*, glycosuria after injection of adrenal extract. This recalls the bronzed diabetes, and consideration of the bronze skin of Addison's disease with the fact of adrenal diabetes suggests the possibility of a disease of the adrenals as the cause of the bronzed diabetes.

J. Krank never operates until the urine is examined and it is determined by diet whether the diabetes is intermittent or continuous. Care should be exercised where sugar is always present. The great danger of diabetes in surgery is not the diabetes per se, but the

conditions tending to form culture media for pathogenic bacteria. Most of its dangers can be overcome by proper antiseptic and aseptic procedures. Union by first intention is undesirable and bad practice. In cases where diet is without effect on the diabetes, extreme care must be exercised. Such cases readily become necrotic. It is good practice to keep the wounds open and to use mild antiseptics like boric acid. Operations on bones are especially dangerous.

Urinalysis in Diabetes.—Dr. William A. Evans said that for some time he had been using the polariscope as a test for sugar. The advantages are (1) its greater accuracy, and (2) the ease of application. As is known, the proper tests give reactions with several substances other than sugar, and recently there has been some literature to the effect that phenol hydrazin is not always reliable. His experience has been that the polariscope is not open to any of the objections that exist with other tests. It requires nothing except that the urine be free from sediment. This can usually be had by filtering through filter paper, but occasionally animal charcoal as a filtering medium is required. The only objection to it is the cost of the polariscope. He called attention to the desirability of having some levulose as well as glucose in the meal which is used for testing the converting powers of the person who is under observation. Saccharose probably then would be as good a sugar as can be used by reason of the fact that it contains a good deal of levulose.

Another point was the usual variations in the amount of sugar and even in the presence of sugar in glycosuria. It is not at all unusual for the sugar to disappear entirely for a certain length of time. For instance, at ten o'clock this morning there might be as much as ten grains of sugar, and at twelve o'clock the urine would contain no trace.

For several years he had examined periodically the urine of a number of very busy men in Chicago, whose urine contained a small quantity of sugar. They were not sick; they were carrying great responsibilities, and were equal to those responsibilities; nevertheless, they had a small percentage of sugar in their urine from time to time, and had had for several years.

Age Factor in Diabetes.—A. C. Cotton called attention to the fact that diabetes was rare in the extremes of life. The disease seemed to be increasing among children but this was due to the increased employment of urinalysis in diagnosis. There was an apparently greater amount of diabetes among children in Chicago than in New York. This was, however, due to the fact that the Chicago statistics covered the last four years when urinalysis was becoming frequent, while the New York statistics covered a much longer period. There was a seeming expression of heredity in certain cases. This was rather an expression of maldevelopment than of direct heredity. Diabetes occurred in children after jaundice and after scarlatina. As a rule diabetes in children had a fatal prognosis quite in contrast with the favorable prognosis of senile diabetes.

Ear, Nose and Throat.—W. L. Ballenger pointed out that opinions differed as to the ear, nose and throat produced by diabetes. Any specific disorders due to diabetes had not been clearly demarcated since other causes usually coexisted with diabetic states. Diabetes, however, frequently aggravated any morbid condition of the ear, nose and throat. In operations on these regions the fact should be remembered that diabetic coma was readily superinduced by anesthesia, which brought on the acid state which underlay coma.

Gums and Teeth.—E. S. Talbot pointed out that the gums and teeth were very early affected in the disease. The alveolar process, being a transitory structure, readily yielded to any toxemic state. As the arteries terminated at the base of the teeth, they readily decayed and the dentine cut like horn. The vinous odor of diabetes might occur in the mouth long before other conditions were evident. The early shrinkage of the alveolar process and gums at the outset of diabetes and of diabetic coma had been pointed out by Tyson two decades ago. The conditions of the gums antecedent to toxemic states deserve further study.

The Eye in Diabetes.—Dr. Wilder stated that one of the most marked changes of the eye seen in diabetes was that occurring in the crystalline lens, causing cataract. As the crystalline lens is an epiblastic structure, it very naturally is affected by degenerative changes in a disease such as diabetes, which affects other epiblastic tissues, such as the skin, teeth and nails. Diabetic cataract in the old might be difficult to differentiate clinically from senile cataract. Cataract in young life, without traumatism, should always excite suspicion and prompt an examination of the urine. Indeed, urinalysis should never be neglected in any case of cataract, although diabetic cataract can hardly be said to be a frequent condition. While glycosuria does not contra-indicate operation for extraction of cataract, one should not attempt removal if only one eye is affected. If both lenses are cataractous, the operation may be performed on one eye; if this is successful, the operator should hesitate to tempt Providence again by operating on the other, for the prognosis in these cases is not favorable, and we cannot, as in general surgery, trust to the wounds healing by granulation. In such operations primary union is essential to success.

Another condition of the eye sometimes seen in diabetes is retinitis, which may closely simulate in appearance albuminuric retinitis. Although according to the observations of ophthalmologists this is an infrequent condition, the speaker believes that it would be more frequently found if it were more carefully looked for by the physician. The lesion is usually found in both eyes, but the white plaques and hemorrhages do not so frequently exist in the region of the yellow spot, so that the sight may not be impaired to the same extent as in albuminuric retinitis. Whether the appearance of this condition has the same evil prognostic import as that of the retinitis of Bright's disease has not been fully determined.

Diabetic Specifics.—D. R. Brower pointed out that of necessity there was no specific for diabetes, since conditions indicating treatment were manifold and needed relief more than the glycosuria per se. Insomnia was a distressing symptom which often yielded to hydriatic procedure. He had found the combination of chloral hydrate and sodium bromide the best hypnotic. Some of the crises of locomotor ataxia were accompanied with glycosuria. What might be called the neurasthenic neuroses of diabetes mimicked every one of the great neurosis. Tabetic reflexes, including the light reflex, were sometimes found in diabetes. The amount of urine passed at the outset of coma was sometimes enormous. Some of the English clinicians had observed cases in which four gallons had been passed per diem. The largest amount he had observed was three gallons. He had found strychnine to be of value in the air hunger which is such a marked feature of diabetes as well as other suboxidation states. Heroin in one-sixteenth grain doses was an excellent substitute for morphine since it locked up the secretions less, quieted the general irritation better and decreased the sugar more. The general mental state of the diabetic was a capricious, apathetic, good humored irritability. This state, like the slightly similar but more suspicional state of the consumptive, interfered greatly with con-

tinuity of treatment. Sometimes the coma was disguised by a stuporous melancholia in which the seemingly unconscious patient had psychic nausea, depressing delusions and depressed emotionality. It was in just such a case that opium acted well, and heroin had here shown itself the best of the opium preparations. Trional and sulphonal might set up kidney strain and hence were often contra-indicated. All coal tar preparations were dangerous because of their tendency to produce cardiac depression. In constipation which tended to increase diabetic discomfort aloetic purges and colonic flushings were indicated. He had seen extreme obstipation followed by a fecal tumor produce temporary diabetes which disappeared on colonic flushings that removed the tumor. Rigorous diet was injurious. The distress produced worse results than the benefit from decreased glycosuria could compensate for. All of the alteratives had proved of benefit in luetic, lithemic and allied states. Gold chloride and guiacum were of benefit. Pancreatine and papin were of service. Where opium is indicated the extract of opium was preferable to morphine. Thyroidin and adrenalin were of doubtful value in most cases. Diabetic patients should always be watched for the appearance of acetone, diacetic acid and oxybutyric acid which indicated the onset of coma. Here sodium bicarbonate should be given in great quantity, hypodermically if necessary. Potatoes were allowable because of the quantity of water they contained and also because they tended to increase alkalinity, and also led to an undue collection of fat.

Dermal Changes.—W. L. Baum stated that among dermic states were sometimes to be noted bronzing of the skin and allied states. These were comparatively rare. Eczema was much more frequent and accompanied with itching and burning of the labia and vicinity was sometimes met with in women incident to frequent micturition. The meatus urinarius in the male was similarly affected. Boils, furuncles and carbuncles were of extremely frequent occurrence. Furunculosis and pruritus should always lead to urinalysis. Unilateral sweating at times occurs. Xanthoma elsewhere than on the eyelids indicates glycosuria. In diabetic gangrene, ergot was sometimes of service through its constitutional effects in decreasing glycosuria. In prostate and vesical irritation of glycosuric origin it was often of value. Diabetes mellitus edema is not necessarily the result of renal changes, but is usually an expression of anemia.

J. Frank called attention to a class of toxemic states presenting all the symptoms of diabetes except glycosuria and polyuria. These cases were bad subjects for operation.

Prof. Hallberg pointed out that extract of opium contained the tonic principle narcotin which affected beneficially the influence of morphine. Opium was to be preferred to its alkaloids.

Mental Effect of Acid States.—J. G. Kiernan said that glycosuria, diacetic acid, beta-oxybutyric acid and acetone often appeared during the quiet and depressed periods of certain psychoses. In depressed psychoses there was marked wasting as well as decidedly irregular metabolism. Sometimes cases occurred in which the patient was sane during the glycosuric period, and insane during the period when sugar was absent from the urine. Glycosuric states sometimes took the place of epileptic attacks. Acidosis (as Naunyn had called the acid state underlying coma) often coincided with the apoplectiform attacks of paretic dementia. Heroin in one-sixteenth grain doses answered much better than other opium preparations, but it is not free from certain dangers.

BOOK REVIEWS.

THE FREETHINKERS' MANUAL. Containing the Description of the Seat and the Nature of the Human and Animal Soul; an Explanation of Thought, Dream, Death and Life; the Illumination of the Brain, the Fecundation of the Storage Batteries in the Human and Animal Body, an Explanation of Fever, Disease, etc., etc. By Professor Dr. BAUR, Physiologist; H. F. HERBERT, Electrician, and a great number of Scientists. Philadelphia, Pa.: Radical Publishing Co.

THERE was a time not so long ago when the physician was rather expected to be unorthodox in his views on religious and spiritual matters. That time is, we think, past. It was to the profession of that other time that a book like the present would appeal. We doubt, however, whether physicians will nowadays have much interest in a book that says seriously that man no longer "goes to his God, but his accumulators have become short-circuited." The chapter on the new medicine has a certain special interest because of the calm presumption with which a new classification of disease is introduced. "The new medicine acknowledges only two kinds of maladies. First the subelectrical diseases, and secondly the supra-electrical and finally the mixed maladies. To the first kind of maladies belong leprosy, cancer, osteomalacia, chlorosis and in general all the diseases during which we find no fever, but a general feebleness and low temperature, etc., etc." The assumption of medical knowledge is quite as brazen as the presumption of theological knowledge.

TRAITÉ DE MÉDECINE ET DE THÉRAPEUTIQUE. Poublié sous la direction de MM. P. BROUARDEL, Professeur à la Faculté de médecine de Paris, et A. GILBERT, Professeur de thérapeutique à la Faculté de médecine de Paris. Tome Neuviemè. MALADIES DU CERVEAU, DE L'ISTHME DE L'ENCÉPHALE, DE MENINGES ENCÉPHALIQUES, DE LA MOELLE EPINIÈRE ET DES MÉNINGES SPINALES. Par M.M. BOURNEVILLE, RAYMOND, CLAUDE, HUTINAL, KLIPPÈL, DEJERINE, THOMAS, GILBERT ET LION. J. B. Baillière et Fils. Paris.

BROUARDEL'S and Gilbert's Traité de Médecine needs no special commendation in this its ninth volume; those volumes which have preceded it have stamped it as a leading work in the French tongue.

This volume, devoted almost exclusively to the study of the nervous system, enhances in a distinct manner the value of the whole series. It is masterly. Dejerine and Thomas' chapter on diseases of the spinal cord is an admirable contribution.

Throughout the volume may be seen in striking fashion the preeminent faculty of the French training for clearness of description and striking dramatic presentation. These descriptions of disease entities are marvels of this type.

CLINIQUE DES MALADIES DU SYSTÈME NERVEUX. Hospice de la Salpêtrière. (Anne 1897-1898) Par Prof. F. RAYMOND. Quatrième Série. Octave Doin. Paris.

THE custom of collecting in book form the clinical lectures of the famous teachers of the Salpêtrière is worthy of emulation in other quarters, especially when such excellent material for permanent preservation is offered. While in such a series the studies are necessarily of a desultory character, their masterly handling makes them of double import.

The present fourth series has thirty-one studies; tumor of the Rolandic zone, tuberculous meningitis en plaque, alternating paralysis, superior-polio-encephalitis,

double ophthalmoplegia, asthenic bulbar paralysis, hemiplegia, muscular atrophy, tabes and syringomyelia, lead poisoning, affections of the conus, anterior poliomyelitis, traumatic hysteria, hallucinations, myoclonia, juvenile paresis, and infantile myxedema. Such is the range of subjects treated. For the neurologist this series is indispensable.

PHOTOGRAPHIC ATLAS OF THE DISEASES OF THE SKIN. By GEORGE HENRY FOX, A.M., M.D. Parts X, XI, XII, XIII; J. B. Lippincott Company, Philadelphia and London.

PARTS X, XI, XII, and XIII of this "physicians' edition" of Fox's Diseases of the Skin maintains the same standard of the earlier contributions and deserves from the reviewer's hands similar unstinted praise for the fidelity to nature and the beauty of execution made manifest. As already noted in the MEDICAL NEWS the possession of this series will prove of inestimable service to the general practitioner notwithstanding the many uncertainties of nomenclature in this branch of medicine.

A PRACTICAL MANUAL OF INSANITY FOR THE MEDICAL STUDENT AND PRACTITIONER. By DANIEL R. BROWER, A.M., M.D., LL.D. and HENRY M. BANNISTER, A.M., M.D. W. B. Saunders & Company.

THE general medical student and practitioner is usually in much need of fundamental ideas concerning insanity. Not so much from the side of active therapeutics but from the viewpoint of early diagnosis and prophylaxis, particularly of those tragic accidents which are many times unfortunately the first intimation to the family or the physician that mental derangement is present in the household.

No amount of book reading is capable of making an alienist; actual living within the walls of an insane asylum is an essential feature in the study of this disease; but preceding such residence the student of mental science should have a firmly fixed series of fundamental questions which are essential in the investigation of the patients.

Such a groundwork is admirably sketched in this small manual. While it lacks much of the stimulating philosophy of many older manuals it may be regarded as a sound and admirable treatment of the essentials in this intricate field of human pathology.

DIE GROSSHIRNRINDE ALS ORGANE DER SEELE. Von Prof. Dr. ALBERT ADAMKIEWICZ in Wien. J. F. Bergmann, Wiesbaden. G. E. Stechert, New York.

THE centuries-old and ever recurring query as to the location of what is termed the Soul once again finds an able exponent. Dr. Adamkiewicz presents in this small brochure many of the later day monistic doctrines concerning the brain pallium as the real seat of the soul.

Viewed from the medical standpoint the book gives an excellent short summary of the physiology of the so-called higher mental faculties.

CLINIQUE DES MALADIES DU SYSTEME NERVEUX. Hospice de la Salpétriére. Annee, 1898-1899. Par. Prof. RAYMOND de Paris. Cinquieme Serie. Octave Doin. Paris.

THIS is the fifth series of lectures of Professor Raymond as given at the Salpétrière during the years 1898-1899. If the lectures on Nervous Diseases in American medical colleges were of this order we venture to claim that less would be heard in condemnation of the "didactic" lecture. The style is that of the clinical lecture, simple and direct and of great pedagogic value.

There are 650 pages in the present volume, 140 of which are concerned with a study of partial epilepsy of the Bravais Jacksonian type. The limitations of our knowledge concerning the topography of the sensory cortical centers is well pointed out in another lecture. Much space is given to disseminated tuberculous meningitis and the question of brain tumors is fully and illuminatingly discussed. Other subjects written of are: Bulbar asthenia, sensory disorders in tabes, objective disturbances of sensibility in syringomyelia, dorsal Pott's disease, hysterical word deafness, scleroderma, "spondylose rhizomélique," and others.

The subjects treated are active ones and many in need of thorough discussion. These contributions are noteworthy and timely.

MUSKELFUNCTION UND BEWUSSTSEIN. Eine Studie zum Mechanismus der Wahrnehmungen. Von Dr. E. STORCH in Breslau. J. F. Bergmann, Wiesbaden. G. E. Stechert, New York.

THE phenomena occupying a middle ground between known nervous activities and unknown or "illy apprehended soul" life affords always a fascinating study. The present small brochure concerns itself with the function of memory as resident in muscular activity, and is a valuable contribution to this interesting subject.

UEBER DIE AETIOLOGIE DES CARCINOMS MIT BESONDERER BERÜCKSICHTIGUNG DER CARCINOME DES SCROTUMS DER GALLENBLASE UND DES MAGENS. Von Dr. Gustav Fütterer. Professor der Pathologie in der Universität von Chicago. J. F. Bergmann, Wiesbaden. G. E. Stechert, New York.

THIS monograph of 115 pages is the work of one among the American profession and is a most admirable treatise. It concerns itself with pathological studies of carcinoma viewed from the experimentalist's viewpoint, and also deals in detail with carcinoma of the scrotum, the gall-bladder and of the stomach.

HUMAN EMBRYOLOGY AND MORPHOLOGY. By ARTHUR KEITH, M.D. (Aberdeen), F.R.C.S. (Eng.), Lecturer on Anatomy, London Hospital Medical College. Edward Arnold, London.

THIS is a straightforward didactic account of human embryology. It is admirably adapted to the teaching of this branch of knowledge and has but one small defect. The drawings illustrating many of the details are inartistic in their ideas and crude in the execution. Apart from this minor blemish the book deserves a wide recognition.

MENTAL GROWTH AND CONTROL. By NATHAN OPPENHEIM, M.D. The Macmillan Company, New York.

IN a prefatory note the publishers tell us "that certain books of counsel, teaching young men and women how best to shape their ideals and their lives played an honorable part in the literature of the nineteenth century." "These books * * * have long since become powerless to aid a younger generation" and it is their intention "to issue a short series of small volumes that shall fulfil the mission of the best of these obsolescent manuals."

This present is one of the series projected. From most points of view it is a very excellent integer in

the make-up of the publisher's ideal, but in some regards it will never fill the place of a number of the obsolescent volumes. While we freely admit that the skeleton of facts of many of these older manuals was very meager, yet the clothing was gracefully and entertainingly adjusted. The present work abounds in structural details, but the literary tailoring does not seem to us attractive. There is too much of the pedagogue and not enough of the real teacher or inspirer. The intellect is most bravely crammed but the emotions are not touched. Herein lies the great difference between the older and the newer.

MORPHINISM AND NARCOMANIAS FROM OTHER DRUGS. Their Etiology, Treatment, and Medicolegal Relations. By T. D. CROTHERS, M.D. W. B. Saunders & Company, Philadelphia and London.

COMING as this work does from one of the most active members of the profession interested in this side of medical work it bears the impress of sincerity and of value. The author first gives a short historical résumé of the history of opium and its uses, and then takes up the various clinical features.

As a whole the work is very interesting and its reading profitable. If any adverse criticism should be given we believe that it would come from the standpoint of the literary presentation of the subject. Here the author has been hampered by a certain lack of perception of the logical relations and has given us a disjointed, though excellent treatise.

PROGRESSIVE MEDICINE. Vol. II. June, 1902. Surgery of the Abdomen—Gynecology—Diseases of the Blood and Ductless Glands—Metabolic Diseases—Ophthalmology. Lea Brothers & Co., New York and Philadelphia.

THIS is the fourteenth number of PROGRESSIVE MEDICINE that has appeared and the fourth annual survey by the same writers.

In one sense this volume has always been a most attractive and valuable one for the practitioner and surgeon—not only because of the topics treated but because of the most excellent grasp of the subject matter of the field and a very discriminating sense of the art of knowing how to tell it, possessed by the contributors, Drs. Coley, Clark, Stengel, and Jackson.

They apparently have not lost any of their art or their enthusiasm, for the present volume is the equal if not better than any that have gone before it. The chapters on gunshot wound, on appendicitis and on surgical treatment of the kidney are thoroughly modern and valuable. The articles under Gynecology are admirable. The résumé of diabetes and its correlated subjects should be read by all active practitioners, for this is a field in which epoch-making discoveries are being made. The section on Ophthalmology is as complete and as scholarly as ever.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. A new Edition, Completely Revised and Rewritten. Edited by ALBERT H. BUCK, M.D. Vol. IV. Erg.-Inf. William Wood & Company, New York.

THE immense superiority of this revision over the original work is made more manifest with the appearance of each volume, and when it is remembered that the Reference Handbook was for our fathers a veritable storehouse, its value to the present generation is manifest.

From the opening article on Ergot to the closing pages devoted to infiltrations the topics discussed are authoritatively handled.

Certain topics call for more than a passing mention. Thus the article on Evolution is one rarely met with in a book of this character. While leaning somewhat to the speculations of the modern students of "Biometrica" it is an interesting and valuable contribution. The articles on the Eye constitute a modern text-book both in their elaboration of illustration and the completeness of description. Food and Drug Inspection is well handled and the subject of Food Poisons is given in a nut shell. The importance of the orthopedics of the foot is recognized by the writer of this article here. Nowhere outside of the author's own book is the subject so well discussed. The subject of Fractures is, we believe, below the usual standard. The illustrations particularly being for the most part the old-fashioned woodcuts of the early days of bookmaking. The article on Fungi is more technically informing than that in the earlier edition, but lacks much of the interest of the older account. It is a safe guide, however. Excellent articles also are those on Gunshot Wounds, Surgery of the Hands and Fingers, Heredity, Hernia, Histological Technique, Hospital Ships, Impregnation, Infancy and Infant Feeding.

There are some of the shorter articles and even a few of the longer ones which have not received their due share of the modernizing process, but these are but few in number and insignificant when the work, as a whole, is considered.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

CLINICAL PSYCHIATRY. By Dr. A. Ross Defendorf. 810, 420 pages. Illustrated. The Macmillan Company, New York.

THE ELECTRIC PRACTICE IN DISEASES OF CHILDREN. By Dr. W. N. Mundy. 8vo, 613 pages. The Scudder Brothers Company, Cincinnati.

THE ROLLER BANDAGE. By Dr. W. B. Hopkins. Fifth Edition. Demi 8vo, 162 pages. Illustrated. J. B. Lippincott Company, Philadelphia.

THE SURGERY OF THE RECTUM. By Dr. Charles B. Kelsey. Sixth Edition. 8vo, 402 pages. Illustrated. William Wood and Company, New York.

THE ESSENTIALS OF HISTOLOGY. By Dr. E. A. Schäfer. Sixth Edition. 8vo, 416 pages. Illustrated. Lea Brothers & Co., Philadelphia and New York.

TEXT-BOOK OF PHYSIOLOGICAL AND PATHOLOGICAL CHEMISTRY. By Dr. G. Bunge. Second English Edition. P. Blakiston's Son & Co., Philadelphia.

TRANSACTIONS OF THE CHICAGO PATHOLOGICAL SOCIETY. Vol. IV. Oct., 1899-June, 1901. 8vo, 494 pages. Illustrated. American Medical Association Press, Chicago.